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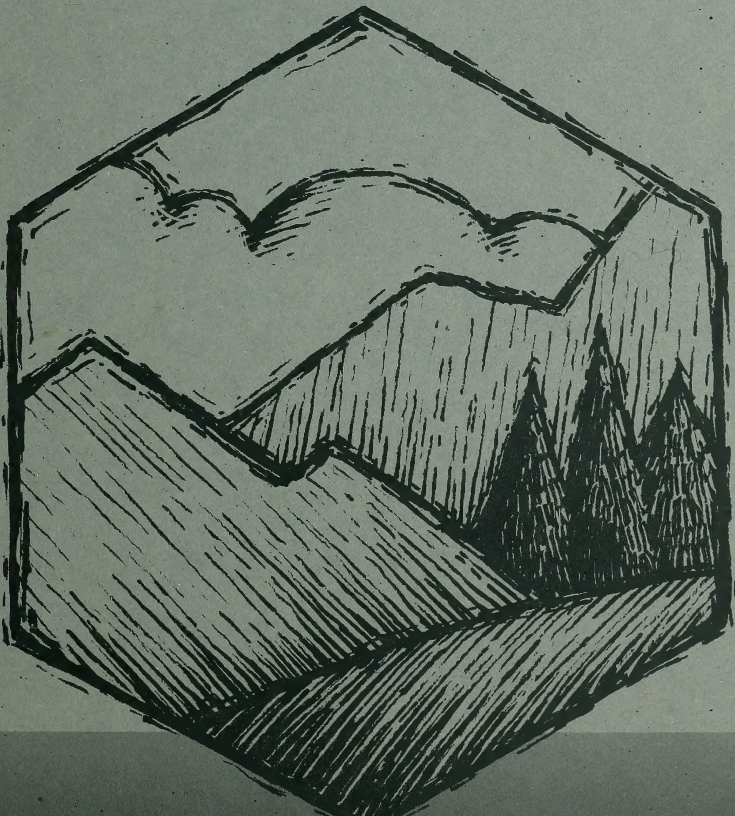
KAKWA WILDLAND PROVINCIAL PARK

Management Plan



Alberta
ENVIRONMENTAL PROTECTION

Kakwa Wildland Provincial Park

Management Plan

Alberta Environmental Protection

Land and Forest Service
and
Natural Resources Service

October 1997

Copies of this management plan may be obtained from:

Land and Forest Service, Wapiti District
10811-84 Ave.
Grande Prairie, AB T8V 3J2
Phone: 403-538-8080
Fax: 403-538-1941

Natural Resources Service
204, Provincial Building
5102-50 Avenue, Box 570
Valleyview, AB T0H 3N0
Phone: 403-524-3362
Fax: 403-524-4855

Natural Resources Service
10320-99 St.
Grande Prairie, AB T8V 6J4
Phone: 403-538-5265
Fax: 403-538-5622

1998

Approval Statement

The Kakwa Wildland Provincial Park Management Plan is the official plan of Alberta Environmental Protection, Land and Forest Service and Natural Resources Service.

The plan is a commitment by the Northwest Boreal Region to the protection and management of resources in Kakwa Wildland Provincial Park and the provision of recreation opportunities within it.

HW Gray

Date AUG 8/97

Howard Gray, Regional Director
Land and Forest Service
Northwest Boreal Region

Date AUG 8/97

Pat Long, Regional Director
Natural Resources Service
Northwest Boreal Region

This plan is consistent with the provisions of the Provincial Parks Act and Regulations and with provincial policies, priorities and direction.

for

Date Sept 22/97

Jim Nichols, Assistant Deputy Minister
Alberta Environmental Protection

C Henderson

Date Sept 23/97

Cliff Henderson, Assistant Deputy Minister
Alberta Environmental Protection

Monitoring

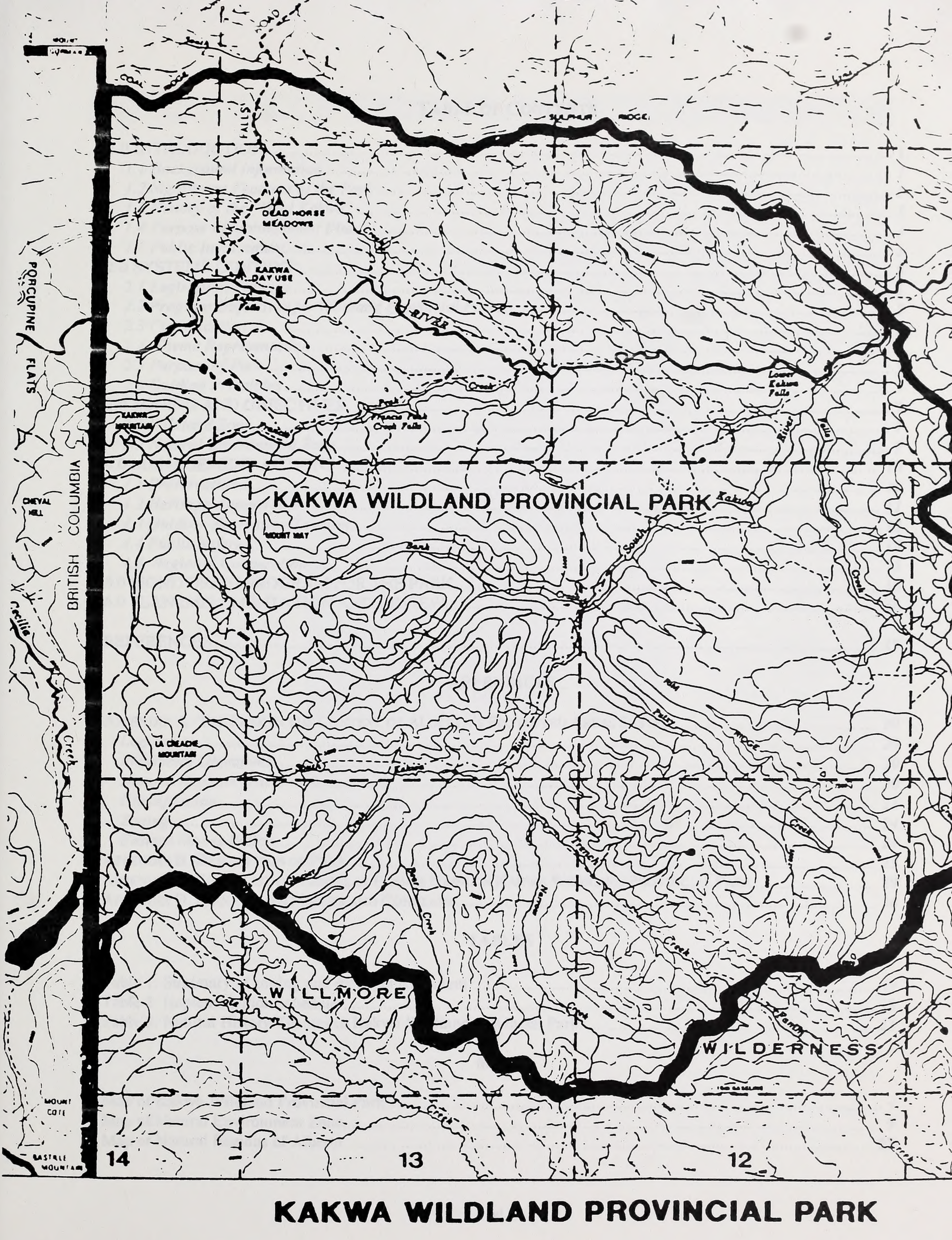
The intent of management is to retain the wildland character of Kakwa Wildland Provincial Park, while offering backcountry recreation opportunities that are dependent on this type of setting. This can only be accomplished by ensuring that human impact is minor and in the long term does not alter the character of the park. To this end a monitoring program will be developed to measure environmental and social changes in the park. These changes can serve as flags for management action to prevent long-term impacts.

Implementation of Management Plan

The park will continue to be managed on a day-to-day basis by Land and Forest Service, with policy direction and support from Natural Resources Service. An implementation schedule has been prepared to carry out the management proposals presented in this plan.

Table 1: Summary of objectives and management actions for zones

MANAGEMENT ZONE	OBJECTIVES	MANAGEMENT DIRECTION
Wildland Zone ▪ All of the park except the natural environment zone.	▪ To not interfere with natural processes except for forest fires, pests and diseases, and wildlife management ▪ To maintain wildlife populations, with special emphasis on vulnerable species ▪ To provide opportunity for unstructured exploration and appreciation of a wildland area ▪ To offer backcountry recreation opportunities ▪ To support commercial trailriding, outfitting and other commercial operators	▪ No motorized activities will be allowed in this zone except for 2 non-conforming uses - use of snowmobiles by registered trapper in the park, and use of trail from Dead Horse Meadows to B.C. border by snowmobilers. ▪ Existing horse trails will be monitored for impacts to environment. ▪ The park will not undertake to develop new equestrian trails. ▪ No built structures or facilities will be allowed in this zone. ▪ Random camping is allowed in this zone.
Natural Environment Zone ▪ access road corridor from north boundary of the park to Kakwa Falls ▪ Dead Horse Meadows ▪ Kakwa Falls day use area ▪ river corridor from Kakwa Falls to B.C. border ▪ Kakwa River corridor from east boundary to Lower Kakwa Falls.	▪ To provide access on fair-weather road to Kakwa Falls day use area ▪ To offer opportunity to view the falls and its wildland setting ▪ To maintain backcountry camping opportunities at Dead Horse Meadows, and day use facilities at Kakwa Falls ▪ To provide opportunities for off-highway vehicle use in the park	▪ Vehicle access to park will continue to be the road from Two Lakes. ▪ **Designated ATV trails:** - access road from Two Lakes to the day use area at Kakwa Falls - trail from east boundary to Lower Falls. ▪ ATV users may use trail from day use area to viewpoint overlooking Kakwa Falls to transport elderly and disabled. Permission must be obtained in advance from Land and Forest Service, Grande Prairie. ▪ **Designated snowmobile trails:** - access road to Kakwa Falls - Kakwa River from Kakwa Falls west to the B.C. border - Trail from Dead Horse Meadows to B.C border - Trail from east boundary to Lower Falls. ▪ Dead Horse Meadows is a designated camping area. No random camping is allowed within 1 km of it, or within 1 km of Kakwa Falls day use area.



KAKWA WILDLAND PROVINCIAL PARK

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1.0 INTRODUCTION

1.1 Background Information

Kakwa Wildland Provincial Park is located in the front ranges of the northern Rocky Mountains. It shares its southern boundary with Willmore Wilderness Park, and its western boundary is the BC. - Alberta provincial border. Beyond the north and east boundaries are forested crown land. The park is about 640 km^2 in size.

Access --- Vehicle access to the park is south from Grande Prairie on Highway 40 across the Wapiti River, west through Grovedale on paved Highway 666, and then generally southwest along a forest company gravel road to Two Lakes Provincial Recreation Area. From here access to the park is via a fair-weather road suitable in good conditions for 4-wheel drive vehicles. The road ends at a day use area 1.2 km. upstream from Kakwa Falls, about 10 km. south of the north boundary of the park. The park is also accessible via horse trails from the south along the Famm/Trench Creek trail, from the east along the Kakwa River, and from B.C. along the Kakwa River.

Kakwa Falls

The Two Lakes Provincial Recreation Area is the major campsite facility for visitors who spend the day at Kakwa Falls. Informal camping also occurs in the Two Lakes/Sherman Meadows corridor

Park Topography--- Kakwa Wildland Provincial Park is in the front ranges of the Rocky Mountains. Elevation ranges from 1200m along the Kakwa River to 2450m at the summit of Mt. May in the west central part of the park.

There are 3 major mountain ranges, trending northwest, which run through the park. The northern range, which lies north of the Kakwa River valley and includes Sulphur Ridge on the northern boundary of the park, has several peaks over 2130m. To the south of Kakwa River lies the second range of mountains, a series of ridges and valleys extending from the southeastern corner of the park to the northwest, and including Mt. May and Kakwa Mountain. The third range is located between the South Kakwa River and Coté Creek in the extreme south of the park, with several of its peaks over 2280m. Beyond Coté Creek to the south, outside of the park, are the easterly ranges of the northern Rocky Mountains.

The Kakwa River runs west to east roughly between the 2 northernmost ranges. Its headwaters originate in B.C., but much of its watershed is within the park, including South Kakwa River, Trench Creek, Francis Peak Creek, and Mouse Cache Creek. Most of these creeks are swift flowing and turbulent, and have cut deep narrow valleys. Kakwa River has two falls, the Upper and Lower Kakwa Falls, and a 4 km canyon below the upper falls.

Vegetation---Vegetation in the park falls into two broad vegetation zones, the subalpine and alpine. The subalpine is further subdivided into lower and upper subalpine because of different dominant forest cover. The lower subalpine area of the park is forested in lodgepole pine, and the upper subalpine is mostly Englemann spruce and balsam fir. The balsam fir at higher elevations grows in a dwarf form called krummholtz, a result of the harsh growing conditions. Deciduous trees are for the most part restricted to areas on the floodplain of the Kakwa River. The approximately 40% of the park which is alpine has a diversity of vegetation communities which vary dependent on local moisture conditions.

Several vegetation species occur in the park which were previously unknown in Alberta, or thought to be limited to areas farther south. See Appendix C for lists of plants found in Kakwa.

Wildlife---Most of the large mammals which find suitable habitat in alpine and subalpine regions can be found in Kakwa, including mountain goat, bighorn sheep, grizzly bear, moose, woodland caribou, elk, deer, wolves and wolverine. Smaller mammals such as mink, otter, pine marten and red squirrel also inhabit the park. Bull trout, a species of special concern in Alberta, spawn in tributaries of the Kakwa River. Whitefish, rainbow trout and arctic grayling are also found in the Kakwa River. Many forest bird species are present, including blue grouse, white-tailed ptarmigan, bald eagle, and a variety of forest songbirds. Appendix B provides a more detailed description of the natural history of the park.

Historical/Cultural--- Little is known about the early use of the Kakwa area, but aboriginal people probably inhabited it as long as 10,000 years ago. Pre-European inhabitants were probably related to the Sekani or Beaver peoples, but they were displaced around 1820 by Iroquois and Metis associated with the fur trade. This group regarded the area from Grande Prairie south along the edge of the mountains to Jasper as their homeland (MacGregor 1962).

There is some documentation of European activity in the area beginning in the early 1900s. Most activity originated from the south, as it was thought that forest fires in the 1890s effectively blocked passage into the area from the north and northeast for about 30 years. In 1912 Fay and Brewster rode from Grande Cache to hunt in the Kakwa Lake area, and returned via the Kakwa River, over a pass to the Smoky, and then south. The Alberta/B.C. border was surveyed in 1924. In 1929 surveyors approached the area from Grande Prairie along a trail which the present road generally follows, and parties were studying the wildlife and geological resources of the area by 1944. Oil exploration and big game hunting came to the area during the economic boom after the end of World War II in 1945.

Few have tried to settle in the area. In the early 1900s Mr. Sherman used pack horses to carry farm machinery into Sherman Meadows. He was the fire ranger and game warden for the area in the 1930s and 1940s. His homestead, which was on the west side of the Torrens River, is now known locally as Old Sherman Meadows.

Until 1953, when a road was built to Two Lakes, horses were the only way to access the area.

Recreation--- Trailriding and outfitting are probably the biggest recreational uses of the park. A network of trails exists both inside the park and in all directions around it, and is used primarily by riders, and some hikers. The streams offer good fishing in clear mountain waters. A favorite use of the park is day trips to Kakwa Falls, where a day use facility is located. This road to the falls is open to ATVs in summer and snowmobiles in winter.

Dispositions---There are no logging or subsurface mineral dispositions in the park. The park area was withdrawn from an FMA in 1975, and around the same time negotiations began for the withdrawal of mineral leases. The only dispositions in the park are for trapping.

1.2 Significant Features of the Park

- The park contains the northernmost east ranges of the Rocky Mountains in Alberta.
- The alpine areas in the park are habitat for mountain sheep and summer range for caribou. Both these species are considered vulnerable in Alberta.
- The park is situated in a mountain/foothills transition zone. Because of this it contains important habitat for plants and animals at the edge of their range. For instance, it is the northern edge of the range for bighorn sheep in Alberta. It is also the edge of range for several vegetation species whose normal range is in B.C. These species were previously thought to occur in Alberta only in the Waterton region. See Appendix C for list.
- The park contains several other plant species ranked as rare in Alberta. See Appendix C.

- The mountain streams are spawning beds for bull trout, a species of concern in Alberta.
- Kakwa Falls and canyon is a significant natural feature of the park. Downstream from the 30 meter falls, the Kakwa River runs through a canyon for 4 km. There are two other falls of note in the park - the Lower Kakwa Falls, and a falls with a natural bridge on Francis Peak Creek.
- Several emerald-colored kettle lakes, east of Kakwa Mountain, are examples of pitted outwash formed by streams flowing from glaciers. A cirque lake, called Glacier Lake, is close to the southwestern boundary.

1.3 History of the "Wild Kakwa"

Industrial interest in the region began in the 1940s. By the 1960s it had dramatically increased, threatening to disturb the pristine natural environment and the recreational activities associated with it. In 1971 a concerned group of citizens, based out of Grande Prairie and known as the Wild Kakwa Society, formed to lobby for the preservation of the Wild Kakwa area. They presented a petition to the government, signed by over 10,000 Albertans, in support of this initiative.

In 1973 the Environmental Conservation Authority conducted public hearings into land use and resource development in the Eastern Slopes. The Wild Kakwa Society made a presentation at these hearings in support of protecting the Wild Kakwa. A Foothills Resource Allocation Study was released, which included the Kakwa area.

In 1975, a policy for integrated resource management in the Eastern Slopes was announced. At the same time steps were being taken to protect the Kakwa area. Compensation negotiations were completed with resource companies holding leases in Kakwa, and it was announced as a candidate provincial park.

In 1976 Kakwa was withdrawn from Procter and Gamble's Forest Management Agreement (FMA). At the same time the Horn Ridge area was also withdrawn. In 1977 a Policy for Resource Management of the Eastern Slopes was adopted to ensure that all public lands and resources in the Eastern Slopes were protected, managed or developed consistent with an integrated resource management approach.

Studies and plans of the area followed, and boundaries were defined, but park designation for Kakwa was postponed. In the early 1980s Land and Forest Service took an active role in planning and managing the area, and have continued to do so.

A revised 1984 Eastern Slopes Policy identified two zones in the Kakwa area, a prime protection zone and general recreation zone. The general recreation zone is a corridor along the Kakwa River, and a corridor that includes the road leading from the north boundary of the park to Kakwa Falls. The rest of the park is a prime protection zone.

In 1985 the Kakwa area was legislated as a Forest Land Use Zone (FLUZ). In 1987 the same area was declared a Wildland Recreation Area. In 1996, as part of the Special Places program, Kakwa was designated a Wildland Provincial Park.

1.4 Purpose of Management Plan

Since the early 1980s, several draft planning reports have been produced for the area (Policy Recommendations Report 1984, Wild Kakwa Recreation Plan 1986, Kakwa Wildland Recreation Area Internal Management Plan 1987). In 1994, Land and Forest Service produced a draft management plan for the Wild Kakwa Forest Land Use Zone that remained an internal working document.

The incentive for developing this management plan comes from questions arising from designation of Kakwa as a Wildland Provincial Park. It has been prepared jointly by Land and Forest Service and Natural Resources Service.

The plan is to ensure that Kakwa achieves its objectives as a wildland provincial park. It will provide direction for the management of the park for up to 10 years from date of approval, and is based on:
- relevant government legislation
- departmental policy
- public input

More specifically, the management plan will:
- provide an overview of the park;

- identify issues and concerns that relate to management of the park;
- develop zoning for the park, and objectives for each zone in terms of protection, heritage appreciation, outdoor recreation and tourism; and
- develop management actions which address the concerns and issues of park stakeholders and the general public, and which meet park objectives.

1.5 Public Involvement

The preparation of a management plan must include involvement with the public interested in the management of the park, such as park users, industry, other government agencies, and other interested public. Their input is integrated into the development of the plan.

Public involvement for this plan proceeded in 4 stages. Stage 1 focused on creating public awareness of the planning process and identifying those who were interested in participating. These people were then asked to identify issues and concerns they had about the park, and to specify how they wanted to participate in the planning process.

Stage 2 built on the information gathered in stage 1. Fact sheets were sent out to the public explaining the designation of the park and legislation/policy constraints. A series of stakeholder meetings were held with interested groups and individuals to discuss further the concerns and issues about the management of Kakwa. A draft plan was then developed, and reviewed internally.

Stage 3 was public review of the draft plan. A copy of the draft was sent to the mailing list. An open house was held in Grande Prairie to give the general public an opportunity to review the draft plan and provide comments. After this a final draft was drawn up, and presented for departmental approval.

Stage 4 was a wrap-up of the plan. It involved making the approved plan available to the public and other agencies, and evaluating the planning process.

2.0 SYSTEMS CONTEXT

2.1 Legislation/Policies

Kakwa Wildland Provincial Park was created under the Provincial Parks Act, and all park legislation and regulations apply to it. However, in order to accommodate the differences between provincial parks and wildland provincial parks, the Act has been amended as follows:
- Hunting is allowed in wildland provincial parks.
- Random camping and associated open fires are allowed in wildland provincial parks.
- No dispositions, such as grazing leases and surface access for industrial use, will be granted in wildland provincial parks.

The Eastern Slopes Policy (1984) applies to the park area. This plan supports the intent of the policy, and is compatible with its zoning scheme.

2.2 Program Objectives for Wildland Provincial Parks

The Alberta protected areas program is based on 4 broad program objectives which identify a range of functions protected areas provide to meet the needs of Albertans and visitors to the province. For Wildland Provincial Parks these are:
Preservation - To protect provincially significant wildland landscapes that contribute to the representation of Alberta's Natural Regions and Subregions.
Heritage Appreciation -.To provide opportunities for unstructured exploration of natural landscapes.
Outdoor Recreation - To provide opportunities for a variety of backcountry experiences in natural landscapes with minimal facilities.
Tourism/Economic Development - To attract visitors to Alberta for a variety of wildland experiences.

Application of these objectives specifically to Kakwa Wildland Provincial Park is discussed in Section 3.

2.3 Classification

Alberta's protected areas system includes 7 classes of protected areas: Ecological Reserves, Wilderness Areas, Wildland Provincial Parks, Provincial Parks, Provincial Recreation Areas, and Waysides and Access sites. These classes provide a range of contributions to the provincial objectives of a protected area system.

A Wildland Provincial Park is a relatively new class of protected area. On a spectrum of protected area categories, wildland provincial parks place a greater emphasis on preserving the natural landscape than provincial parks, and correspondingly a lesser emphasis on outdoor recreation. Wildland provincial parks offer backcountry recreation opportunities with minimal facilities appropriate to this setting, in contrast to provincial parks which are more facility oriented.

2.4. Theme Representation

Alberta Natural Resources Service has adopted a Natural Regions Framework to assist in the identification and management of protected areas. This framework consists of a hierarchy of natural regions, subregions, and 3 levels of natural history themes.

Kakwa Wildland Provincial Park is located in the Alpine Subregion and the Subalpine Subregion, two of the three subregions in the Rocky Mountain Natural Region. It represents 9 Level 1 and over 50 Level 2 Themes. More information on classification and theme representation is in Appendix A.

2.5 Purpose of Park

The intent of wildland provincial parks is to retain large areas of undeveloped land in their natural state, to keep human interference and developments to a minimum, and to provide opportunities for backcountry recreation.

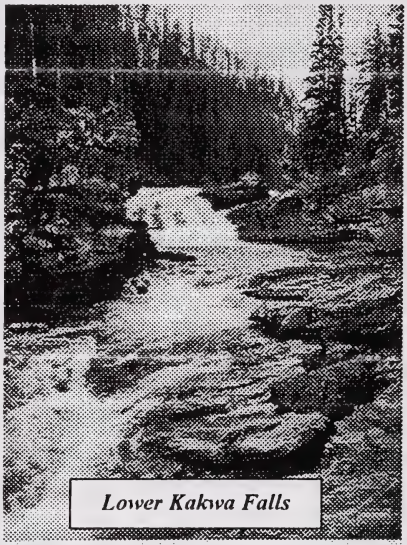
The purpose of Kakwa Wildland Provincial Park is:

> ***To protect a large area of undeveloped land typical of the Alpine and Subalpine subregions, to maintain it in its natural state, and to continue to offer backcountry recreation opportunities compatible with this area.***

2.6 Guiding Principles

These guiding principles for the management of Kakwa Wildland Provincial Park are based on principles of ecosystem management and wilderness management.

1. Preparation of this plan is guided by an **ecosystem management approach**, which is "the integrated management of natural landscapes, ecological processes, physical and biological components, and human activities" (CEAC 1991). The aim of this approach is to achieve cooperation on a regional level in order to maintain the values of the protected area, and to ensure their contribution to the environmental, social and economic aspirations of surrounding communities. Management of ecosystems is an enormous responsibility, as in fact little is known about the complex dynamics of a natural system and how changes in one component affect other components. The key is to adapt management practices as one learns more about the natural and social conditions in a protected area.


Lower Kakwa Falls

2. Ecosystem management means taking a long-term view, instead of managing just for today. Kakwa Wildland Provincial Park will be managed so that its wildness will be maintained for the future.

3. Wildlands generally have few human disturbances and the natural system is to a large extent self-managing. The focus, then, should be on allowing natural processes to operate as freely as possible, and on managing human use of the area to keep interference with natural processes to a minimum.

4. Minimum regulation contributes to the freedom and spontaneity of a wildland experience. Any regulation will be to achieve the objectives of maintaining the wildland character of the park and offering backcountry recreation.

5. The key to long-term management of a wildland area is to monitor for changes in natural and social conditions. These changes, which could run counter to the achievement of park objectives, can act as flags for management action. Monitoring can also be used to evaluate the effectiveness of management actions.

6. A protected area will not likely survive as an intact ecosystem without the support of the users, the stakeholders, and the general public. It will be necessary for the park to take the lead in seeking the involvement of these people, and in soliciting their support and help in management of the park.

7. Parks do not exist in a vacuum. What goes on outside a park, but adjacent to it, can have impacts inside its boundaries. Conversely, designation of an area as a park can affect the management of adjacent areas. Park managers and adjacent land managers need to work together to reach objectives of both areas.

3.0 ZONING AND OBJECTIVES

Zoning is a management tool which divides a landscape into units and identifies the intent and objectives of each unit. It is a useful tool to use in managing a large landscape, because values may vary within it. For instance, preservation values may have a higher priority in some parts of the landscape, and recreation values a higher priority in others.

Kakwa Wildland Provincial Park is divided into 2 zones - a wildland zone and a natural environment zone.

The wildland zone covers the majority of the park.

The areas of the park which are not a wildland zone are a natural environment zone. These are:

- **Access road corridor to Kakwa Falls**
- **Dead Horse Meadows**
- **Kakwa Falls day use area**
- **Kakwa River from the falls west to the B.C. border**
- **Kakwa River corridor from the east boundary to the Lower Kakwa Falls.**

3.1 Wildland Zone

The wildland zone in Kakwa Wildland Provincial Park is an area with a high degree of protection so that its wildland character will be retained. It includes the area identified as a prime protection zone in the Eastern Slopes Policy.

The area in this zone is considered backcountry. It is accessible only by horse or foot, and its only facilities are trails. Use of the area is characterized by solitude, self-reliance, little evidence of others, and minimum regulation. Appropriate activities in this zone are trailriding, random camping, hiking, cross-country skiing, hunting, and fishing. Motorized activity will not be allowed in this zone, except in two instances. Snowmobilers will be allowed to use the trail from Dead Horse Meadows to the B.C. border as an alternate route into B.C., and registered trappers will be allowed to use snowmobiles. These are non-conforming uses of this zone.

This zone includes the alpine areas. Alpine meadows in particular are sensitive to disturbance and slow to rejuvenate. Users of this zone should be mindful of this and keep their impact to a minimum by staying on trails and by camping below the treeline.

Objectives

Preservation

- To allow the forests in the park to follow natural succession.
- To protect and maintain populations of wildlife species inherent to the region.
- To allow natural processes to take place without interference except if forest fires, diseases and pests threaten the forest outside the park and the recreational values inside the park.

Heritage Appreciation

- To allow the opportunity for unstructured exploration and appreciation of the park.
- To promote a sense of stewardship for the park.

Outdoor Recreation

- To provide opportunities for backcountry recreation characterized by solitude, little evidence of others, self-reliance, and minimum regulation.
- To manage the recreation activities in this zone so that these opportunities are maintained for the future.
- To keep facility development to a bare minimum, and only for control and/or mitigation of impacts from use.

Tourism/Economic Development

- To provide opportunities for recreationists from Alberta and farther afield to experience a wildlands environment.
- To support the commercial trailriding and outfitting industry of Alberta, as well as other commercial ventures, such as ecotourism, which cater to tourists seeking a wildland experience.

3.2 Natural Environment Zone

The natural environment zone in the park allows for more intensive recreation activities. Generally activities which are appropriate in the wildland zone are also appropriate in the natural environment zone, for instance trailriding, hiking, and fishing. As well, day use at the falls and motorized vehicle use on designated trails is allowed. Formalized camping in this zone is allowed in the designated site at Dead Horse Meadows. Random camping is permitted elsewhere in the park, but not within 1 km. of Dead Horse Meadows or the day use area at Kakwa Falls.

Objectives

Preservation

- To maintain the natural environment in the zone in as natural a state as possible.

Heritage Appreciation

- To provide the opportunity for visitors to enjoy and appreciate Kakwa Falls and its wildland setting.

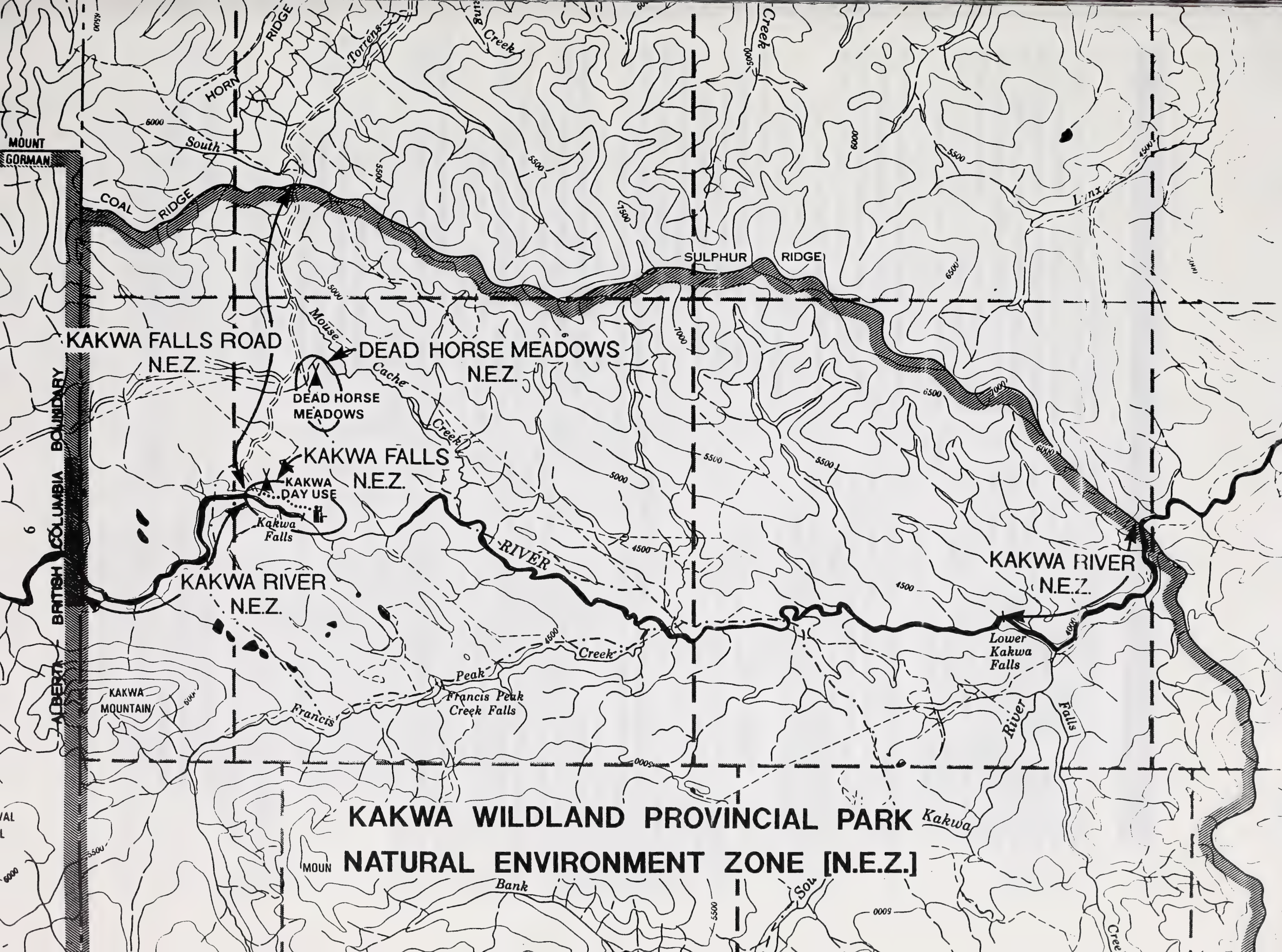
Outdoor Recreation

- To provide opportunities for outdoor recreation in Kakwa Wildland Provincial Park that are more easily accessible than in the wildland zone.
- To manage the main access to the park in a way that is in keeping with its wildland character, and that will fulfill the intent to keep the park wild.
- To allow backcountry camping at Dead Horse Meadows, and maintain day use facilities at Kakwa Falls.
- To allow use of off-highway vehicles on designated trails.

Tourism/Economic Development

- To allow vehicle access to the day use area at Kakwa Falls. The falls is a significant natural feature of the park and an attraction for visitors.
- To support the commercial trailriding and outfitting industry of Alberta, as well as other commercial ventures, such as ecotourism, which cater to tourists seeking a wildland experience.

View of Kakwa Mountain from Kakwa River


KAKWA WILDLAND PROVINCIAL PARK
NATURAL ENVIRONMENT ZONE [N.E.Z.]
KAKWA FALLS ROAD N.E.Z.
DEAD HORSE MEADOWS N.E.Z.
DEAD HORSE MEADOWS
KAKWA FALLS N.E.Z.
KAKWA DAY USE
Kakwa Falls
KAKWA RIVER N.E.Z.
KAKWA RIVER N.E.Z.
Lower Kakwa Falls
RIVER
Kakwa
River
Falls
Mouse
Cache
Creek
Creek
Peak
Francis
Francis Peak Creek Falls
KAKWA MOUNTAIN
MOUNT GORMAN
COAL RIDGE
HORN RIDGE
SULPHUR RIDGE
South
Torrens
Creek
Lynx
Bank
BRITISH COLUMBIA BOUNDARY
ALBERTA
6
4500
5000
5500
6000
6500
7000
7500

4.0 MANAGEMENT ACTIONS

For the most part, natural processes in the park will continue to function without interference from management by humans. The exception is suppression of fires and management of diseases and pests which may threaten the forests outside the park, and which may also threaten the recreational values inside the park. Hunting, fishing and trapping are also human interventions, and will be managed in the park on a sustainable basis.

Since the natural environment of the park is to a large degree self-managing, management of the park will mostly be management of human use and its impact on the natural environment in the park. The focus will be on ensuring that these impacts will not go beyond acceptable levels.

4.1 Preservation

Geology/Soil

Objectives

- To ensure that soil erosion from human use does not noticeably exceed naturally occurring levels.

Current Situation

Soil erosion from human use occurs mostly in connection with the trails in the park, for instance at stream crossings. Another concern is the erosion of the canyon at Kakwa Falls from people descending and climbing the canyon walls.

Management Actions

- Trails will be monitored for deterioration and maintained when necessary. Park users will be solicited to assist in trail monitoring.
- Erosion of features from use i.e. streambanks, the canyon below Kakwa Falls, will be monitored, and appropriate steps taken to mitigate the damage if necessary.

Vegetation

Objectives

- To allow the forest to follow natural succession, except when disturbed by forest fires, and insect and disease infestation.
- To prevent exotic species from taking hold in the park.

Current Situation

The forests within the park have not been logged. Forest fires have burned periodically, but there have been no major fires for over a hundred years. Some Englemann spruce stands in the valleys in the south part of the park are over 300 years old. Prescribed burns have been attempted in Kakwa, but because of the inadequate window of opportunity for good burning conditions, they have been unsuccessful.

The forests to the north and east of the park are part of Weyerhaeuser's Forest Management Agreement (FMA), and Land and Forest Service is committed to ensuring that fires and pests that originate within the park do not threaten the FMA.

Management Actions

- A tree inventory of the park will be completed to provide baseline data. When resources are available, an inventory of unique and/or rare plant species will be reviewed and updated.
- All fires will receive initial action by Land and Forest Service. After this initial action they may be assessed for further action. Those fires that do not threaten the FMA may be allowed to burn out.
- Land and Forest Service have been working on a fire management plan that includes a fire history of the park. This plan will be completed.
- Forest disease and pests will be monitored, and action taken if they threaten the forests adjacent to the park.
- Exotic vegetation can enter the park in many ways, but a primary way is through feed for horses. Presence of exotic vegetation will be closely monitored, and it will be removed if found.
- Dead Horse Meadows, a staging and camping area, is a moist meadow and fairly sensitive to trampling. The vegetation in the area will be monitored for impact from use.

Wildlife/Fisheries

Objectives

- To maintain the wildlife populations in the park, with special attention to vulnerable species such as mountain goats, caribou and bull trout.

Current Situation
The mountain goat population in this area is below numbers considered to be viable for the long term. Caribou herds during the last 15 years have remained fairly stable or slightly declining. The bighorn sheep population is stable, and allocated on a sustainable basis for hunting. Grizzly bears are considered to be a stable, healthy population in this area. Elk, deer and moose exist at low densities in the park, mostly because this is not prime habitat for these species.

Species which are adapted to older age class forests are expected to do well in the park, such as wolverine, pine marten, and some species of birds, while those that are adapted to younger forests will not be as favored, such as lynx.

The water regime in the park presently provides a high quality habitat for fish species, which is expected to continue.

Management Actions
- Inventory of wildlife and allocation of opportunities to hunt certain species will continue in the park.
- Natural Resources Service will continue to assess the status of mountain goats and caribou, and work towards increasing their populations until they become viable. For caribou, in particular, NRS will work with agencies with interests on land adjacent to Kakwa to stabilize their population. Both goats and caribou are currently not available for hunting in Alberta.
- Trapping dispositions in the park and their reassignments will continue to be honored. If the dispositions should return to the crown, a decision will be made regarding their reallocation based on viability of the resource.
- Protection of bull trout and their habitat is a priority for Natural Resources Service. A fisheries management enhancement project is currently being conducted on Kakwa River tributaries east of the park. Similar projects would be encouraged in the park.

4.2 Heritage Appreciation

Interpretation

Objectives
- To allow for unstructured appreciation of the natural heritage of the park.

Current Situation
There are no interpretation programs in the park, or interpretative signs or displays.

Management Actions
- No formal environmental education or interpretation programs will be offered, in keeping with the wildland objectives. Visitors are encouraged to explore the park and learn first-hand about its natural and cultural heritage.

Visitor Information

Objectives
- To continue to provide basic information about the park.

Current Situation
Basic visitor information about the park now exists, including a base map of the park, a trail brochure, and other material.

Management Actions
- The basic park information will be reviewed and updated as necessary and as resources permit.
- The base map prepared by Land and Forest Service is currently available for sale to the public at the Land and Forest Office in Grande Prairie. The map, at a scale of 1:100,000 includes Two Lakes Provincial Recreation Area, Kakwa Wildland Provincial Park, and adjacent areas in B.C. This map will be updated as resources permit.
- The primary contacts for the public will be the Grande Prairie Land and Forest Service, Grande Prairie Natural Resources Service, and Saskatoon Island Provincial Park. Information about the park will be available at these offices, as well as at recreation areas closer to Kakwa, such as at Two Lakes Provincial Recreation Area.

Signing

Objectives
- To provide signing in the park which is useful for visitor enjoyment and safety, but which does not detract from the wildland character of the park.

Current Situation
There is currently minimal signing in the park. These are:
- Signs detailing visitor regulations at Kakwa Falls and Dead Horse Meadows;

- a boundary sign names the area as Kakwa Wildland Recreation Area; and
- a sign posted at the beginning of the trail from Dead Horse Meadows to B.C.

Management Actions

- Signs will be used sparingly in keeping with the wildland character of the park.
- Present signing in the park will be inventoried and updated as necessary.
- The present boundary sign will be updated, and possibly others placed at entry points in accordance with park policy.
- The sign at the beginning of trail from Dead Horse Meadows to the B.C. border will be removed.

4.3 Outdoor Recreation/Tourism

The backcountry experience is what draws visitors to Kakwa Wildland Provincial Park, and is the kind of recreation opportunity intended in a wildland provincial park. Park management will seek to ensure that these kinds of opportunities continue.

Access/Registration

Objectives

- To provide access to the park in keeping with its wildland character.
- To set up a visitor registry system.

Current Situation

The fair-weather road from Two Lakes to Kakwa Falls is the vehicle access to the park. The portion of the road from Two Lakes to Lick Creek is maintained by Weyerhaeuser, including snowplowing in winter. From Lick Creek to Kakwa Falls use of the road is weather dependent. This section of the road is multi-use, with potential use by motor vehicles, off highway vehicles, trailriders, mountain bicyclists and hikers.

There is little information about visitors to the park. What exists is informal, anecdotal information which, when supplemented with a systematic collection of visitor information (who the visitors are, how long they stay, what they do), could provide a profile of park visitors.

Management Actions

- The department does not intend to improve the portion of the road inside the park. Problem areas will be attended to if funding is available. Any roadwork will be carried out with the least amount of impact to the natural environment.
- The multi-use nature of this road has the potential for conflict among users. A sign will be posted to inform visitors of the nature of the road and to encourage respect for other users. Conflicts that may arise, such as between ATV users and trailriders, will be addressed through education about appropriate trail behavior, or if necessary, through a process that will include consultation with the users.
- A registry system will be developed for park users. This will provide information about visitors to the park, and will be useful in monitoring use levels.

Equestrian Use

Objectives

- To continue to offer quality backcountry trailriding and outfitting opportunities in the park.

Current Situation

Equestrian use includes commercial trailriders, outfitters, and recreational trailriders. There are about 60 km. of formally established equestrian trails in the park, including trails along the South Kakwa River, Francis Peak Creek and Trench Creek, and probably just as many kilometers of informal trails. Equestrian use is not restricted to the trails. Many trails begin at Dead Horse Meadows, a staging and camping area.

In the past, commercial trailriders who operated inside the Forest Land Use Zone obtained permits from Land and Forest Service. Their application for permit included an operating plan stating trip schedules, camping destinations, number of people and horses in party, provision of feed for horses, etc. All operators were expected to adhere to the Commercial Trailriding Operating Conditions. Meetings were held each spring with prospective commercial operators to discuss the upcoming year. This process will continue in the wildland provincial park.

Guides and outfitters required a guiding permit to operate in the area.

Management Actions

- The park will not undertake to develop new equestrian trails in the park.
- Commercial trailriders will be required to purchase a Commercial Guiding Permit to

operate in the park (S.44(1)(2) of the Provincial Parks Act - General Regulations). To operate on public land outside the park they will also need a Commercial Trailriding permit (s.2 of the Public Lands Act - Commercial Trail Riding Regulation). These permits can be obtained from Land and Forest Service in Grande Prairie. In future the permits may be combined. Because Land and Forest will continue to be responsible for the day-to-day operations of the park, they will be responsible for approval of permit requests, and will follow the same procedure as in the past.

- Guides and outfitters will be required to purchase a Commercial Guiding Permit to operate in the park, in addition to a Guides permit (S.26(3) of the Wildlife Act).
- Availability of grazing for horses largely determines the number of trailriding parties the park can carry. Present levels of use are sustainable, but impact to the park will be monitored. Increases in use may require more intensive management.
- Trailriders will be encouraged to stage outside the park at Lick Creek. This is to discourage heavy vehicle use of the road in the park.
- Park management will solicit the help and support of equestrian users for compliance with park regulations, and for monitoring trail conditions.

Off-Highway Vehicles[1]

Objectives

- To provide opportunity for ATV users to access Kakwa Falls on a designated trail.
- To provide opportunity for snowmobilers to access the B.C. Kakwa area on designated trails.
- To provide both ATV and snowmobile access to the Lower Kakwa Falls from the east boundary of the park.

Current Situation

Both ATV and snowmobile use exists in the park, although the majority of use in the area is outside the park boundaries. Trails in the park have been designated but use of only these trails has not been strictly enforced.

Snowmobilers use the park mainly for access to prime snowmobiling territory in B.C. They generally camp outside the park at Two Lakes Provincial Recreation Area or at Lick Creek, and randomly along the Kakwa River. Snowmobilers have maintained their own trails.

Management Actions - ATVs

- Recreational all terrain vehicle (ATV) use will be allowed in the park only on designated trails north of the Kakwa River. Random use is prohibited because of its damage to vegetation and soil and disturbance to wildlife.
- The designated trails for ATVs are 1) the access road to Kakwa Falls from the north boundary of the park, and 2) the trail from the east boundary of the park to the Lower Kakwa Falls.
- The trail from the Kakwa Falls parking lot to the viewpoint is off limits to ATV use except to transport elderly and disabled to the viewpoint. A locked gate will be installed at the trailhead, and those wishing to use ATVs on the trail for this purpose should contact Land and Forest Service in Grande Prairie, who can then make arrangements with the guardian.
- The trail from Dead Horse Meadows to the B.C. border will be closed to ATV use. There is no destination for this trail, as B.C. Parks no longer allows ATV use in their Kakwa Recreation Area. A public notice will be issued at the time of this trail closure, and a sign placed on the trailhead to inform ATV users

Management Actions - Snowmobiles

- The designated trails for snowmobiles will be:
  1) the access road to the Falls;
  2) a corridor on the Kakwa River from the falls west to the B.C. border;
  3) the trail from Dead Horse Meadows to the B.C. border as an alternate route into B.C. when the Kakwa River route is impassable from flooding or melting. The trail to the B.C. border is in the wildland zone, and is a non-conforming use of this zone; and
  4) trail from east boundary of park to Lower Kakwa Falls.
- In the past snowmobilers have maintained the winter trails in the park. The park will seek to continue this cooperation with the snowmobilers.

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[1] Off-Highway Vehicle means any motorized vehicle designated for cross-country travel on land, water, snow, ice, marsh or swamp land or on other natural terrain, and includes motor cycles, amphibious machines, all terrain vehicles and snow vehicles. All terrain vehicle (ATV) means a wheeled or tracked motor vehicle designed for travel primarily on unprepared surfaces such as open country and marshland, but does not include a snow machine (from Off-Highway Vehicle Act, consolidated January 18, 1996)

- The park will work with snowmobilers to develop temporary facilities for winter use on the designated trails.
- Both ATV and snowmobile clubs will be expected to inform and educate their members about the use of designated trails in Kakwa Wildland Provincial Park, and to monitor compliance with this regulation. They will also be expected to practice "no trace" camping.

Camping

Objectives

- To provide opportunities for random camping in the park.

Current Situation

Dead Horse Meadows is the most heavily used staging and camping area in the park. Rustic facilities here include fixed corrals, fire rings and pit toilets. Random camping occurs throughout the park, although some areas are used fairly regularly over a season. For instance, trail riders use sites which are good grazing areas.

Management Actions

- Random camping, and open fires associated with random camping, will continue to be allowed in the park, except within 1 km. of designated areas. These two areas are Dead Horse Meadows, and the Kakwa Falls day use area.
- Other areas used fairly regularly for camping will be monitored for impacts. If impacts from use increase to unacceptable levels, designated campsites may be considered in order to contain the impacts.
- Fireplaces or fire pits must be properly used to reduce risk of forest fire. No fires are allowed during times of high fire hazard.
- Campers will be expected to adhere to Backcountry Camping Standards, which includes practicing no-trace camping so as not to degrade the wildland experience for future users of the park.

Hiking/Cross-Country Skiing

Objectives

- To provide opportunities for hiking and cross-country skiing in the park.

Current Situation

The equestrian trails in the park are also suitable for hiking and cross-country skiing.

Management Actions

- Backcountry trails away from the vicinity of Kakwa Falls are remote and physically challenging, and there is generally no contact with park staff. This is in keeping with the intent of a wildland park, but it is incumbent on hikers/skiers to be knowledgeable about wildland travel for their own safety.

Hunting/Fishing

Objectives

- To provide opportunities for hunting and fishing in the park as long as it is sustainable.

Current Situation

Hunting trophy game has been a long-time use of the park area, and will continue to be an activity allowed in Kakwa Wildland Provincial Park. The mountain streams provide high quality fishing opportunities for both fly and rod fishing, and are enjoyed by a number of visitors.

Management Actions

- Hunting will continue to be allowed in the park. Hunting regulations administered by Natural Resources Service apply.
- Natural Resources Service fishing regulations also apply in the park. Bull trout, a species of concern in Alberta that is found in the park, is catch and release only.

Day Use

Objectives

- To provide opportunity for day use of Kakwa Falls.

Current Situation

Day trips to Kakwa Falls is a popular use of the park. The day use area at Kakwa Falls has a parking lot, picnic tables, firepit, firewood and pit toilets. From here a 1.2 km hiking trail leads to a scenic viewpoint overlooking the falls. Day users usually camp at Two Lakes Recreation Area or along the Two Lakes/Sherman Meadows corridor.

Management Actions

- This area will continue to be maintained for day use.
- Two Lakes Provincial Recreation Area or random locations along the Two Lakes/Sherman Meadows corridor will continue to be the main camping areas for day use visitors to the park.

Other Recreational Uses of the Park

Objectives

- To accommodate other backcountry recreation activities in the park as long as they are compatible with provincial park policy and with the intent of a wildland provincial park.

Current Situation

Other recreational activities, such as mountain biking, occur in the park on a very limited basis at this point.

Management Actions

- Management will monitor for new activities and their impacts to the park.
- Any commercial recreation operators working within the park will require a Commercial Guiding Permit (S144(1)(2) of the Provincial Parks Act - General Regulation). These can be obtained at Land & Forest Service in Grande Prairie.

4.4 Public Safety

Objectives

- To inform visitors about the risks of backcountry travel, and what to do in an emergency situation.

Current Situation

There are minimal staff resources in the park. At present a forest guardian works out of Two Lakes Provincial Recreation Area in the summer, and may patrol the access road to Kakwa Falls periodically. Beyond the falls there are no staff patrols, and the visitor needs to be self-reliant.

Management Actions

- Staff patrols of the park will probably continue to be minimal, and the visitor will need to continue to be self-reliant.
- Department brochures on safety in the backcountry will be available to visitors at the Lands and Forest Service and the Natural Resources Service offices in Grande Prairie. Visitors may also consult the forest guardian at Two Lakes Recreation Area.
- For search and rescue operations, the R.C.M.P. have the lead responsibility and should be notified first.

4.5. Regional Cooperation

The following guidelines are based on the understanding that management of Kakwa Wildland Provincial Park cannot occur in isolation from management of adjacent lands.

Objectives

- To pursue a cooperative relationship with managers of land adjacent to Kakwa Wildland Provincial Park.

Current Situation

The park is managed jointly by Land and Forest Service and Natural Resources Service. Land and Forest Service is also land manager for the forested areas north and east of the park, and manages Willmore Wilderness Park. Beyond the western boundary is the B.C. Kakwa Recreation Area

Management Actions

- Land and Forest Service and Natural Resources Service have jointly prepared this management plan, and will continue to cooperate in the management of the park.
- Land and Forest Service is responsible for the integrated use of all resources on crown land surrounding the park, and for management of the crown land itself. Their decisions about land use adjacent to the park will consider impacts to the park. In turn, decisions about management of the park will consider objectives of land use surrounding the park.
- Issues which arise with other agencies and which could impact lands inside and outside the park can best be resolved through discussions with the agencies involved.
- Park management will continue to communicate with their counterparts who manage the B.C. Kakwa Recreation Area, with the aim of complementing each other's protected area objectives.
- This management plan supports in principle the concept of a greater ecosystem management area that would include the park and the protected areas surrounding it. The park would cooperate in initiatives towards this end.

5.0 MONITORING PROGRAM FOR THE PARK

Monitoring will be carried out to help reach the objectives of maintaining the wildland character of the park and providing backcountry recreation opportunities. Monitoring is a systematic way of detecting and measuring changes that, over the long term, may be counter to these objectives. These changes can act as a flag for management action. **The main challenge will be to design a monitoring plan that gathers useful information for managing the park, that is effective, and that is within available resources in the department.**

The monitoring plan for Kakwa Wildland Provincial Park may:
1. Identify natural resource and social factors in the park which need monitoring;
2. Select indicators that will be used to measure changes over time in these factors;
3. Develop thresholds of acceptable change in the indicators; and
4. Identify management actions that could be taken if the thresholds are being exceeded.

These four components are described in more detail below.

5.1. Natural and Social Factors

Broad natural resource and social factors which are tied to park objectives and management concerns should be chosen for monitoring. For Kakwa Wildland Provincial Park, appropriate natural resource factors may include presence of exotic vegetation, condition of trails, impacts of grazing and camping, and the condition of the forest and of wildlife populations. Social factors could include the amount of commercial and recreational use, and conflicts between users.

5.2. Indicators

Since there is not the time or resources to measure everything, indicators of each of these factors may be selected, based on their ease of repeated measurement and their ability to provide an early warning of change. For instance, indicators of camping impacts may include the amount of bare soil exposed at campsites, the size of the camping area, camp cleanliness, and tree damage. These indicators, measured regularly, would over time provide a picture of the impact of camping.

5.3. Thresholds of Change

A threshold would be the upper limit of acceptable change in an indicator. In the example of camping impacts, a threshold would be the upper limit of campground size or tree damage to a site that is acceptable before management action will be taken to prevent further impact and/or mitigate the damage.

Thresholds will be developed for each indicator, and will indicate need for management attention. They can be developed from a mix of scientific knowledge, literature review, value judgments, and visitor input, and should be reasonable within the context of the park.

It may be difficult to establish thresholds at this time for many of the indicators, because there is little or no information on which to base them. Monitoring will build up a data base, and thresholds can be determined later. For instance, monitoring will collect information about the number of users in the park over a period of years. If this information indicates a trend of increasing numbers of visitors, thresholds may be established in order to maintain the wildland character of the park and the quality of the backcountry experience.

A monitoring program should be adaptive to changes, and to learning about the effects of management actions on the park. The selection of factors, their indicators, and thresholds would be based on present best information, but with experience and more knowledge, better factors and indicators may be found and thresholds modified.

5.4. Potential Management Actions

An indicator that reaches or surpasses its threshold, or even establishes a trend in relation to the threshold, can act as a flag for management action. The monitoring plan will identify possible actions which would be appropriate should this happen. These actions should be non-intrusive if possible, in keeping with the intent of a wildland park. Monitoring can also be used to evaluate the effectiveness of these management actions to maintain park conditions at acceptable levels.

5.5. Implementation of Monitoring Plan

To implement the plan, a monitoring guide will be developed to provide specific procedures for measuring each indicator. This will ensure consistency of data collection so that comparisons can be made year after year. The guide will also indicate how often each indicator should be monitored, and who will be responsible for ensuring it is done.

To encourage involvement in the stewardship of the park, park users may be solicited to help with monitoring. For instance, commercial trail riders and outfitters may be asked to report on the condition of trails and campsites. All park users will be invited to fill out brief report cards about the condition of the park and the quality of their experience as part of the self-registry system. The monitoring plan itself may draw on visitor knowledge and expertise about the area, and may invite input and review from stakeholders.

6.0 PLAN IMPLEMENTATION AND REVIEW

6.1. Jurisdictional Responsibilities

Land and Forest Service, Wapiti District will continue to be responsible for the day-to-day operation of Kakwa Wildland Provincial Park, and will continue to issue permits required for use of the park. Natural Resources Service will provide policy support in keeping with the Provincial Parks Act and General Regulations. The two services will cooperate in the planning and implementation of the proposals in this management plan.

6.2. Plan Implementation Schedule

Table 4 is a proposed schedule for implementing the management plan.

Table 2: Implementation Schedule

Actions	Target Date	Responsibility
Complete Fire Management Plan	Fall 1998	LFS*
Prepare Monitoring Plan	1997/1998	LFS, NRS*
Implement Monitoring Plan	Summer 1998	LFS
Set up registry for visitors	Spring 1997	LFS, NRS
Review park information for visitors	Spring 1997	LFS, NRS
Review and update signing for park	Summer 1997	NRS
Install gate at trailhead at Falls	Summer 1997	NRS, LFS
Close trail to B.C. to ATV use	Summer 1997	NRS
Communication with B.C. Parks	Ongoing	NRS

*LFS - Land and Forest Service

*NRS - Natural Resources Service, which includes Parks and Fish & Wildlife

6.3. Management Plan Review

This is the first management plan for Kakwa Wildland Provincial Park and will be subject to a review no later than 10 years from date of approval. A review may be done before then if it is warranted.

Management plan review will revisit the issues of the first management plan, and evaluate how well park objectives are being met through management actions. It will also deal with new issues that may arise. The monitoring plan should also be evaluated at the time of the review.

Review of the plan will ask for participation from recreational users of the park, commercial operators, government agencies, special interest groups, and other members of the public. However, public input is not restricted to management planning and review times. Public involvement is key to the success of this management plan and to the success of Kakwa as a Wildland Provincial Park, and will be encouraged at any time.

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Appendix A

The Park in the Context of Albert's Protected Areas System

Legislation

Wildland provincial parks are created under the Provincial Parks Act. In order to accommodate the differences between wildland provincial parks and provincial parks, legislation has been amended as follows.

Disposition Regulations

- Dispositions or authority to construct access roads will not be granted in a wildland provincial park.
- Existing dispositions will be honored and access granted. Also, access will be granted to privately owned land that is surrounded by a wildland provincial park.

General Regulations

- Random camping activity is permitted on land within wildland provincial parks. However, where there is a backcountry campground, no person shall camp outside the campground and within one kilometer of the campground. This is in order to maintain the ability to manage, if necessary, heavily impacted areas.
- Open campfires associated with random camping activity is permitted on all land within wildland provincial parks except those lands located within one kilometer of a backcountry campground, in which case all fires must be set and maintained within the campground itself.
- Hunting for wildlife is allowed in wildland provincial parks during the open season for the particular wildlife hunted.
- Discharge of firearms is authorized for hunting of wildlife.

Provincial Objectives

Alberta Environmental Protection has 4 broad program objectives that identify a range of functions which protected areas provide to meet the needs of Albertans and visitors to the province. They are:
Preservation - To preserve and protect in perpetuity a system of representative, special and outstanding natural landscapes and features as well as landscape-related prehistoric, historic and cultural resources of Alberta.
Heritage Appreciation - To provide opportunities to explore, understand and appreciate the natural, historical and cultural heritage of Alberta, and to enhance public awareness of our natural environment and our relationship to it.
Outdoor Recreation - To provide a variety of intensive and dispersed outdoor recreation opportunities and related facilities and services
Tourism/Economic Development - To encourage residents and visitors to discover and enjoy the natural, historical and cultural resources of the province through a variety of recreation opportunities, facilities and accommodation services.

In order to reach these objectives in a systematic, rather than ad hoc manner, the government uses several tools to plan for, establish and manage protected areas in Alberta. These are the Natural Regions Framework, classification, and zoning, and are discussed below.

Natural Regions Framework

A primary objective of the protected areas program of Alberta Environmental Protection is to protect representative samples of Alberta's natural and cultural heritage. There are already many protected areas in Alberta, but there has not been a systematic way of identifying what representative samples of Alberta's landscape are protected by these areas, and which landscapes are not represented or poorly represented.

The Natural Regions framework based on natural landscape features has been adopted to systematically identify representative samples of the landscape of Alberta. This framework is a hierarchy of natural regions, subregions, and natural history themes. Natural Regions provide the big picture of Alberta's landscape, such as grasslands, mountains, and boreal forests. The subregions and natural history themes are subdivisions of the natural regions, and provide a more detailed picture of smaller areas.

There are 6 Natural Regions in Alberta - Boreal Forest, Rocky Mountain, Foothills, Canadian Shield, Parkland and Grassland. Differences between these regions are readily apparent by their distinct landform features and vegetation. (See map on next page).

Each of these Natural Regions has been divided into subregions based on criteria that may vary depending on the Natural Region. For instance, the Rocky Mountains Natural Region has been divided into 3 subregions, the Montane, Subalpine and Alpine Subregions, based on changes in environmental conditions due to changes in elevation. The Boreal Forest Natural Region, however, is divided into 6 subregions based on vegetation, geology, and landforms. The subregions in this region vary with the predominant forest cover, the topography (whether they are level, undulating, or hilly), and the mix of uplands and wetlands. In all there are 20 subregions in Alberta.

Subregions are further divided into Level 1, Level 2, and Level 3 Natural History themes. Level 1 themes are based on easily observed landforms of subregions, such as wetlands and protected slopes of valleys and ridges. There are 20 Level I themes distributed across the subregions, but not all are represented in each subregion. For example, within the 6 Boreal Forest Subregions, 11 of the 20 Level I themes occur.

Level 2 themes are more specific breakdowns of Level I themes. They refer to distinctive vegetation, habitat types or highly visible geology features. Examples of Level 2 themes of the Subalpine Subregion of the Rocky Mountains Natural Region are different kinds of surficial deposits, such as glacial, morainal or colluvial, and different types of forest cover, such as spruce/fir, lodgepole pine, whitebark pine, larch or deciduous trees. Level 3 themes are finer breakdowns of Level 2 themes. They include specific features such as rare plants and animals, and specific bedrock and landform types, for instance caves and waterfalls.

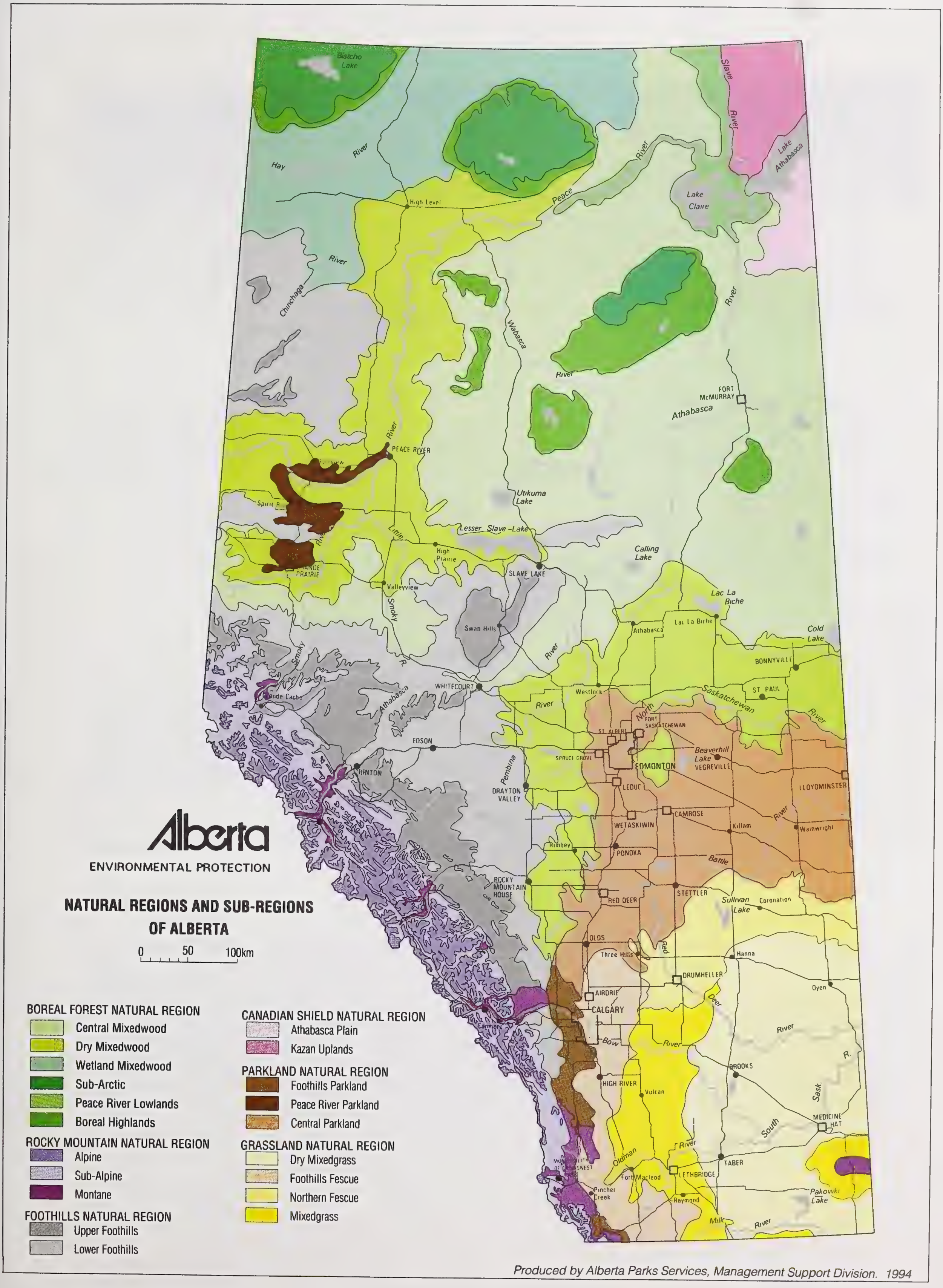
Natural Regions
↓
Natural Subregions
↓
Level I Themes
↓
Level II Themes
↓
Level III Themes

The themes, because of their detail, are most useful for identifying the natural diversity within Alberta. Level I themes can usually be seen on aerial photography maps, while Level II and Level III themes require detailed biophysical studies. Analysis of these themes can determine which sites in Alberta would be the best samples of our natural heritage.

In order to meet the preservation objective, the province intends to place under protection land which is representative of each of the Natural Regions of Alberta through its Special Places program. In order to capture the full range of diversity of each natural region, targets have been set for the amount of land that needs to be represented by each Level 2 theme. Some of the targets have already been met through existing protected areas such as the national parks located in Alberta, and the Alberta provincial parks. The intention is to fill the gap between what is presently represented, and what is not presently represented.

Kakwa Wildland Provincial Park lies within two subregions of the Rocky Mountain Natural Region. The areas above treeline are in the alpine subregion, with the remainder (and majority) of the park in the subalpine subregion. Within the whole park, 9 Level I themes and around 50 Level II themes are represented. The chart on the next page shows the breakdown of the themes in the two subregions.

Besides representing alpine and subalpine subregions, the park contains natural features such as Kakwa Falls that are considered special by Albertans. It provides the opportunity for outdoor recreation and heritage appreciation in a backcountry wildland area, without the facilities and services that for some people detract from the outdoor experience. It also supports the guiding and outfitting industry by providing an area for backcountry tourism pursuits.



Alberta
ENVIRONMENTAL PROTECTION

NATURAL REGIONS AND SUB-REGIONS OF ALBERTA

Produced by Alberta Parks Services, Management Support Division. 1994

Natural History Themes in Kakwa Wildland Provincial Park

Subalpine Subregion		Alpine Subregion	
Level I Natural History Themes	**Level II Natural History Themes**	**Level I Natural History Themes**	**Level II Natural History Themes**
Valley/Ridge Floor/Stream (applies to stream-influenced valley bottoms including the stream channel and related riparian woodland and shrubbery)	**Fluvial** **Morainal** **Old Growth Forest** **Spruce forest** **Lodgepole Pine Forest** **Deciduous Forest** **Recently Burned Forest** **Shrubbery** **Braided River Stream** **River Canyon** **Muskeg Stream**	**Valley/Ridge Floor/Stream** (applies to stream-influenced valley bottoms including the stream channel and related riparian woodland and shrubbery)	**Fluvial** **Morainal** **Colluvial** **Moderate Snow communities** **Deep Snow Communities** **Stream**
Valley/Ridge Ridge/ Valley Wall (the term ridge/valley wall applies only to the foothills and Mountain Natural Regions)	**Front Range** **Bedrock – Non Calcareous** **Bedrock – Calcareous** **Morainal** **Colluvial** **Snow Avalanche Slope** **Timberline – Krummholz** **Lower Subalpine** **Upper Subalpine** **Spruce – Fir Forest** **Old Growth forest** **Lodgepole Pine Forest** **Subalpine Larch Forest** **Deciduous Forest** **Recently burned Forest** **Shubbery** **Graminoids**	**Valley/Ridge Ridge/ Valley Wall** (the term ridge/valley wall applies only to the foothills and Mountain Natural Regions)	**Bedrock – Landform** **Bedrock – Non Calcareous** **Bedrock – Calcareous** **Morainal** **Colluvial** **Shallow Snow Communities** **Moderate Snow Communities** **Deep Snow Communities** **Moist Meadow**
Wetland – Mineral (wetlands with minimal peat accumulation, including marshes and swamps)	**Coniferous Forest** **Shubbery**	**Wetland – Mineral** (wetlands with minimal peat accumulation, including marshes and swamps)	**Wet Meadow**
Wetland – Organic	**Coniferous Forest** **Shrubbery** **Graminoids**	**Wetland – Lake**	**Lake**
Lake	**Lake**		

Classification

Classification is a tool that provides overall direction for the management of protected areas. Several government agencies within Alberta Environmental Protection manage protected areas. For instance, Land and Forest Service manages Forest Land Use Zones (FLUZ). However, Natural Resources Service has the prime responsibility for the administration and management of recreation areas and protected areas designated under the Provincial Parks Act and the Wilderness Areas, Ecological Reserves and Natural Areas Act. Under these two pieces of legislation, seven classes are established: Ecological Reserves, Wilderness Areas, Wildland Provincial Parks, Provincial Parks, Natural Areas, Provincial Recreation Areas, and Waysides and Access Sites. A site is classified on the basis of its contribution to the 4 broad program objectives. Kakwa, because of its remoteness, large size, and relatively little use, contributes a large amount to the protection objective, and relatively smaller amounts to the other objectives.

Zoning

Zoning is a management tool used to ensure long term protection while permitting appropriate visitor activities within a protected area. The use of the protected area is organized according to its capability to support visitor activities and the need to protect significant natural resources. Seven possible zones have been identified for Alberta's protected areas, ranging from preservation, which has the highest protection emphasis, to access, which has the highest use emphasis. Each protected area would not apply all the zones to its landbase, as each class of park has a different mix of protection and use. Kakwa Wildland Provincial Park is divided into 2 zones, a wildland zone and a natural environment zone. They are discussed further in Section 5 in the management plan.

Eastern Slopes Policy

Kakwa Wildland Provincial Park lies within the Eastern Slopes. Direction for management of this area is provided by the Policy for Resources Management of the Eastern Slopes (1984). The policy identifies objectives for resource sectors such as wildlife, fisheries, recreation, tourism, timber, and mineral resources. It divides the area into zones, and discusses appropriate resource use for each zone.

The area of Kakwa Wildland Provincial Park is divided into two zones by the Eastern Slopes Policy – Prime Protection and General Recreation. The Prime Protection Zone is intended to preserve environmentally sensitive landscapes and valuable ecological and aesthetic resources, and generally includes the sensitive higher elevations of the eastern slopes. The General Recreation Zone is intended to provide a variety of natural environments that offer a wide range of outdoor recreation opportunities. The zoning of Kakwa Wildland Provincial Park is consistent with the Eastern Slopes Policy zoning of the park area.

Appendix B

Description of Park

Topography

Kakwa Wildland Provincial Park is in alpine and subalpine terrain. Elevation ranges from 1200m along the Kakwa River, to 2450m at the summit of Mount May in the west central part of the park. Three major mountain ranges, trending northwest/southeast, run through the park. The northern range, which lies north of the Kakwa River valley and includes Sulphur Ridge on the northern boundary of the park, has several peaks over 2130m. The second range of mountains, to the south of Kakwa River, consists of a series of ridges and valleys extending from the southeastern corner of the park to the northwest, and includes Mount May and Kakwa Mountain. The third range is located between the South Kakwa River and Coté Creek in the extreme south of the park, with several of its peaks over 2280m. Beyond Coté Creek to the south, outside of the park, are the easterly ranges of the northern Rocky Mountains.

These ranges, which are the main structural elements of the area, were formed by a series of thrusts and folds, but are complicated by numerous smaller faults and folds. Northeast facing slopes are usually steeper than those facing southwest because of the direction of the forces creating this thrust/fold pattern.

Climate

The climate of the park area is generally characterized by short, cool summers and long, cold winters. Temperatures range seasonally from -50°C to +28°C, with a mean annual temperature of -5°C[1], and vary greatly with elevation. In general the park has more summer rain, more winter snowfall, a shorter snow-free season, and lower summer temperatures compared to adjacent areas on the north and east (Jaques 1979).

Annual precipitation comes from three sources: weather systems which bring moist air from the Pacific; easterly winds that bring moisture from the Hudson Bay region (usually late spring and early autumn); and convective precipitation caused by local topography and thunderstorm activity. Snow accumulation is generally greater on the northeast slopes than on the more exposed southwest-facing slopes. The southern-exposed slopes are good winter ranges for sheep and goats. Total annual precipitation ranges from 500-900mm with about 42% occurring in the form of snow.

Bedrock Geology

The Kakwa area is underlain by Mesozoic sedimentary rock formations, ranging in age from Upper Cretaceous to Triassic (65 to 250 million years ago). These formations are comprised mostly of easily-weathered shales and sandstones and more resistant conglomerates. Generally the highest peaks and ridges occur where resistant bedrock of Lower Cretaceous age or silty limestones of Triassic age are prominent, and the lower peaks and valleys are eroded in the softer interbedded shales.

Weathering of the shales and sandstones on the steeper mountain and valley slopes has produced a mantle of silty colluvium[2]. The shales in particular are susceptible to weathering and talus slopes[3] (usually vegetated on the lower slopes) and gullying is typical in shale formations. A highly resistant conglomerate, the Cadomin Formation, surfaces occasionally to form ridges. Waterfalls on the Kakwa River, South Kakwa River, and Francis Peak Creek occur where the water courses cross these ridges.

Bedrock outcrop is generally confined to the backwalls of cirques, mountain slopes exceeding 30 degrees, deeply incised parts of the major river valleys, and a few areas of deeply gullied shale slopes. Considering the mountainous terrain, exposed bedrock does not cover a large area, perhaps a reflection of the susceptibility to weathering of the relatively soft rock. There are limestone and dolomite outcroppings in the southwestern corner of the park that are fairly resistant to weathering.

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[1] Based on data collected at Copton and Torrens fire towers, both outside the park.

[2] Colluvium is a general term applied to loose deposits, typically along steeper slopes, and brought there chiefly by gravity instead of by channeled flowing water.

[3] Talus is course debris collected at the base of a steep slope. It is a kind of colluvium.

Glaciation and Surficial Geology

The area was covered by ice sheets during the last glaciation period known as the Wisconsin glaciation (about 20, 000 to 7,000 years before the present). During this period western Canada was covered by 2 major ice sheets. One, the Laurentide, originated in the eastern part of the Northwest Territories and moved southwest. The other, the Cordilleran, originated to the west and southwest and flowed northeast across the mountains and onto the plains of Alberta. Erratics[4] at high elevations in the Kakwa area that are composed of rock from the Rocky Mountains attest to the movement of the Cordilleran ice sheet from west to east. At some point the two ice sheets met, probably east of the present Kakwa area, and flowed in a southeasterly direction along the eastern edge of the foothills.

The major landforms in the park are the result of these glaciations and the numerous advances and retreats of both ice sheets in the area. The most distinctive glacial landforms are cirques which generally occur on the northeast and north facing slopes. These are characteristically semi-circular rock bowls with a steep headwall of bedrock partially covered with rock talus, talus cones and alluvial fans. Streams flow from the cirque floors in deeply-incised V-shaped valleys.

Surficial deposits refer to layers of sediment that are between bedrock and the soil layer. They are generally related to the effects of glaciers. In the park the surficial deposits include till, colluvium, glacio-fluvial deposits, alluvial deposits, and organic deposits.

Till is a non-sorted sediment of sand, silt and gravel carried by a glacier. Young tills were deposited during the last glaciations and are generally found in the valleys. Older till is generally located on level to gently sloping uplands at elevations higher than 1500m. Ground moraine, a thin covering of till, occurs in the major river valleys. There are few lateral or end moraines in the park.

Colluvium refers to loose deposits, typically along steeper slopes, and brought there chiefly by gravity instead of by flowing water. The composition of colluvium depends on the composition of the bedrock higher up the slope. Much of the higher elevations of the park are covered with this material. Talus, an apron of loose rocks that slopes outward from a cliff from which it is derived, is colluvial material, and is common at the base of cirques. However, more commonly the colluvium resembles till, and ranges from rock fragments to sand or silt.

Glaciofluvial deposits (deposited by streams flowing from glaciers) are mainly of gravel, and have formed some small features in the park, including outwash terraces, pitted outwash, and kame terraces. Outwash terraces are found along some small level areas on the present floodplain of the Kakwa River. This outwash is composed of rounded pebbles derived from Rocky Mountain Paleozoic formations (rock formed earlier, 250 to 590 million years ago, and farther west), and carried by streams flowing eastward. Examples of pitted outwash are the series of small lakes located between the Kakwa River and Francis Peak Creek, to the east of Kakwa Mountain. These lakes of green-colored water (locally called Emerald Lakes) are probably fed by calcium-rich mineral springs. Kame terraces are ridges of till along a valley wall formed from deposits by glacial meltwater, and are present in places along the Kakwa River.

Alluvial deposits (sediments deposited from modern rivers) are present along the Kakwa River, often course or overlaid with fine sandy or silty alluvium. Fine alluvium is present along the smaller streams. Alluvial features include alluvial terraces and alluvial fans. Terraces, about 10 to 30 feet above the present river levels and composed of gravel and sand, are located mainly along the Kakwa River valley mainly downstream of the falls, and the South Kakwa River. Alluvial fans occur where fast mountain streams merge into slower moving rivers with broader valleys, such as where Francis Peak Creek flows into the Kakwa River.

Organic deposits are limited in the park. The main areas are Dead Horse Meadows and some linear depressions between bedrock ridges in the area of Kakwa Falls. These areas are composed mainly of sedge peat.

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[4] An erratic is a rock, deposited by a glacier, that is different from the bedrock beneath it.

Soils

Generally soils in subalpine subregions vary widely, reflecting the great diversity in parent materials. Soils in the alpine subregions generally form a thin layer over bedrock, and are the same kinds of soils as in the subalpine subregion.

In Kakwa Wildland Provincial Park, the main soil orders are luvisols, brunisols, regosols, and organic soils. Luvisols and brunisols are upland soils that have developed under vegetation complexes ranging from very dense coniferous forests to open coniferous and mixed forests where herbaceous vegetation forms an important part of the ground cover. The main difference between these soils is the amount of nutrients that have been leached from the soil by water. If the water first passes through dense ground litter it becomes very acidic, and results in heavy leaching of the soil. Luvisolic soils are most heavily leached, and brunisols the least. Regosols are mineral soils that are not well developed, probably because of recent deposition or erosion. These often develop on fluvial, alluvial and colluvial materials. Organic soils are formed from organic depositions, usually found in wetland areas

The Kakwa River valley contains mainly Luvisolic soils, although regosols have developed on the alluvial terraces along this river and other streams in the park. Regosols and Brunisols are the dominant soils on the mountain slopes, with Regosols on the higher alpine meadows and Brunisols on the lower slopes. Organic soils are scattered throughout the wet areas of the Kakwa Valley and wet upland plateau areas.

Aquatic Systems

All the streams and rivers in the park are tributaries of the Smoky River. They mostly flow swiftly in deep, narrow valleys which have some canyon sections and waterfalls or rapids where they cross hard rock barriers. Generally, the major streams and their tributaries flow northeasterly, dissecting the northwest trending mountain ranges. Exceptions to this are Trench and Putzy Creeks that flow parallel to the ranges.

Kakwa is the major river, draining out of Kakwa Lake in B.C. and flowing across the northern section of the park into the Smoky River, about 85 km from the eastern boundary of the park. Its tributaries include Mouse Cache Creek, Francis Peak Creek and South Kakwa River. Tributaries of the South Kakwa are Trench Creek, Putzy Creek and Falls Creek. The Kakwa River has 2 major falls on its reach, Kakwa Falls (30m high) and Lower Kakwa Falls. Below Kakwa Falls the river runs through a canyon for several kilometers. There is also a falls on Francis Peak Creek with a natural rock bridge over the falls. Floodplain development is restricted to the Kakwa River downstream from the canyon and to short sections of the South Kakwa River. The Kakwa River floodplain is confined between rock walls 6 to 15 meters high.

There are a few small lakes within the park, including Glacier Lake in the extreme southern part of the park, and the pitted outwash lakes mentioned before. Small wet sedge and willow areas are common especially in the area of Dead Horse Meadows and lower Francis Peak Creek.

Vegetation

Vegetation of the alpine and subalpine subregions in the park is discussed separately as characteristic vegetation of each subregion differs.

Subalpine Vegetation

Subalpine vegetation is usually subdivided into Lower Subalpine and Upper Subalpine. Lower Subalpine is characterized by closed forests of lodgepole pine, while Upper Subalpine is characterized by Englemann spruce-subalpine fir closed forests and open forests near treeline. Aspect influences the vegetation; for instance northern slopes are often more vegetated with Englemann spruce-subalpine fir than southern slopes because of more soil development and wetter conditions.

The lodgepole pine of the Lower Subalpine is adapted to post-fire regeneration, and eventually succeeds to white spruce. In many areas pines form an upper canopy above regeneration of spruce and fir. These conditions are found within the broad Kakwa River valley where fires occurred @1925 and 1960. Shrub cover is commonly composed of rhododendron, bracted honeysuckle, mountain ash and dwarf birch. Common understory species include buffaloberry, hairy wild rye, showy aster, bearberry, junipers, heart-leaved arnica, twinflower, one-sided wintergreen and bunchberry. Tangles of alder and willow grow along some stretches of the creeks and rivers.

Deciduous trees in the park are for the most part restricted to the floodplain of the Kakwa River below its confluence with Francis Peak Creek. Some balsam poplar and trembling aspen also occur sporadically on the lower and mid-slopes of valleys with a south or southwest exposure.

Englemann spruce/subalpine fir forests typically occur on higher, moister sites that are not as subject to fire. Typical understory includes false azalea, huckleberry, gooseberry, bunchberry and one-sided wintergreen. Higher up, nearer the treeline, more open forests include Englemann spruce, subalpine fir, and whitebark pine, with an understory of arrowleaf goundsel, mountain valerian, western anemone, and heathers. Subalpine fir at its extreme upper range occurs in a dwarf form called krummholz. Extensive stands of krummholz occur in the La Creche Mountain area - such a large area of this is a unique ecological feature of the park.

Alpine Vegetation

The Alpine Subregion covers areas from tree line to mountain summits; the treeline in Kakwa varies from 1676m to 2042m in elevation. About 40% of the park is above the treeline. Here the vegetation differs considerably with the fine-scale microclimate variations influenced by aspect, wind exposure, time of snow melt, soil moisture and snow depth.

Deep, late-melting snowbeds are occupied by black alpine sedge communities. Moderate snowbed communities typically contain dwarf shrub heath tundra that is dominated by heathers and grouseberry. Krummholz fir and spruce occurs here on lee slopes. Shallow snow areas on ridgetops and other exposed sites contain communities dominated by white mountain avens, snow willow and moss campion. Diverse, colourful herb meadows occur in moist sites below melting snow banks or along streams. Communities at the highest elevations are composed mainly of lichens on rocks and shallow soil.

Wildlife

The occurrence of animal species in the Subalpine Subregion often overlaps with species in the Alpine Subregion, and with those in coniferous forests of the Boreal Natural Region north and east of the park. These include spruce grouse, gray jay, golden and ruby-crowned kinglets, yellow-rumped warblers, pine siskin, boreal chickadee, marten, snowshoe hare, deer mouse, red-backed vole, red squirrel and black bear.

Some species within Kakwa Wildland Provincial Park are migrant, using different habitats in an annual cycle. These include elk, mule deer, caribou, mountain goat and bighorn sheep. Elk generally spend the summers high up in the alpine meadows and retreat to lower elevations at the first snowfall. They graze on grasses, sedges and forbs in summer; their winter diet consists of mostly browse. Mule deer favor open coniferous forests and brush lands, and in winter move to lower elevations such as the river valleys. Mountain caribou have a larger range. Their summer range may include the southern portion of the park. In winter they migrate generally northeast, across Caw Ridge, to lower elevations. Grizzly bear roam throughout the northern Rockies, including Kakwa.

Birds common to the subalpine forests include junco, blackpoll and yellow-rumped warblers, hermit thrush and spruce grouse. Openings in the forest along creeks and meadows attract white-crowned and Savannah sparrows, Wilson's warblers and bohemian waxwings.

Bull trout, a species of special concern in Alberta, spawn in tributaries of the Kakwa River, including those within the park. This species is found only in B.C., Alberta and the northwestern United States. It was once widely distributed throughout western and central Alberta but is now found in greatly reduced numbers in the drainages of the eastern slopes. It is a voracious feeder, adapted to cold water and difficult conditions. It is an excellent indicator species of the environmental health of mountain and foothill streams, and its presence in the drainages of the park attest to their natural condition. Mountain whitefish, rainbow trout and arctic grayling are also found in the Kakwa river system.

Appendix C

Plants found in Kakwa Wildland Provincial Park

This list of vascular plants was compiled by Jaques and Van Eck (1979).

Trees	
Alpine fire	*Abies lasiocarpa* (Hook.) Nutt.
White Spruce	*Picea glauca* (Moench) Voss X *Picea engelmannii* Parry
Lodgepole pine	*Pinus contorta* Loud var. *latifolia* Engelmann
Balsam poplar	*Populus balsamifera* L.
Aspen	*Populus tremuloides* Michx.
Tall Shrubs	
River alder	*Alnus incana*
Sitka alder	*Alnus sinuata* (Regel) Rydb.
Saskatoon	*Amelanchier alnifolia* Nutt.
	Salix barclayi Anderss.
	Salix barrattiana Hook.
	Salix farrae Ball
	Salix glauca L.
	Salix scouleriana Barr.
	Salix spp.
Medium Shrubs	
Dwarf birch	*Begula glandulosa* Michx.
Swamp birch	*Betula pumila* L. var. *Glandulifera* Regel
Wolf willow	*Elaeagnus commutata* Bernh.
Ground juniper	*Juniperus communis* L.
	Ledum glandulosum Nutt.
Labrador tea	*Ledum* groenlandicum Oeder
Bracted honeysuckle	*Lonicera involucrata* (Richards.) Banks
False huckleberry	*Menziesia ferruginea* Sm. var. *glabrata* (Gray) Peck
Shrubby cinquefoil	*Potentilla fruticosa* L.
Chokecherry	*Prunus virginiana* L.
	Rhododendron albiflorum Hook.
Skunk currant	*Ribes glandulosum* Grauer
Briskly black currant	*Ribes lacustre* (Pers.) Poir
	Ribes laxiflorum Pursh
Wild gooseberry	*Ribes Setosum* Lindl.
Wild red currant	*Ribes triste* Pall.
Prickly rose	*Rosa acicularis* Lindl.
Wild red raspberry	*Rubus idaeus* L.
	Salix myrtillifolia Anderss.
	Salix Planifolia Pursh
Rock willow	*Salix vestita* Pursh
Red elder	*Sambucus racemosa* L. var. *pubens* (Michx.) Koehne
Buffaloberry	*Sheperdia canadensis* (L.) Nutt.
Mountain ash	*Sorbus scopulina* Greene
White meadowsweet	*Spiraea betulifolia* Pall. var. *lucida* (Dougl.) C.L. Hitchc.
Snowberry	*Symporicarpos albus* (L.) Blake
Buckbrush	*Symphoricarpos occidentalis* Hook.
Tall blueberry	*Vaccinium membranaceum* Dougl.
Low blueberry	*Vaccinium myrtilloides* Michx.
Blueberry	*Vaccinium myrtillus* L.
Low bush cranberry	*Viburnum edule* (Michx.) Raf.
Low Shrubs	
Alpine bearberry	*Arctostaphylos ruba* (Rehd. & Wils.) Fern.
Bearberry	*Arctostaphylos uva-ursi* (L.) Spreng.
White mountain heather	*Cassiope mertensiana* (Bong.) D.Don
	Cassiope tetragona (L.) D.Don var. *saximontana* (Small) C.L. Hitchc.
Prince's pine	*Chimaphila umbellata* (L.) Barton var. *occidentalis* (Rydb.) Blake
White dryad	*Dryas integrisfolis* Vahl
White mountain avens	*Dryas octopetala* L.
Crowberry	*Empetrum nigrum* L.
Creeping wintergreen	*Gaultheria humifusa* (Grah.) Rydb.
Mountain laurel	*Kalmia polifolia* Wang.
Twinflower	*Linnaea borealis* L. var. *longiflora* Torr.
Alpine club moss	*Lycopodium alpinum* L.
Alpine club moss	*Lycopodium annotinum* L.
Stiff club moss	*Lycopodium complanatum* L.
	Lycopodium selago L.
Pink heather	*Phyllodoce empetriformis* (Smith) D.Don
Yellow heather	*Phyllodoce glanduliflora* (Hook.) Cov.
Pink wintergreen	*Pyrola asarifolia* Michx.
Lesser wintergreen	*Pyrola minor* L.

One-sided wintergreen	*Pyrola secunda* L.
One-flowered wintergreen	*Pyrola uniflora* L.
Artic willow	*Salix arctica* Pall.
	Salix nivalis Hook.
	Salix reticulata L. ssp.
Dwarf blueberry	*Vaccinium caespitosum* Michx.
Small bog cranberry	*Vaccinium oxycoccos* L. var. *microcarpus* (Turcz.) Fedtsch. & Flerov.
Bog cranberry	*Vaccinium vitis-idaea* L.
Ferns	
Lady fern	*Athyrium filix-femina* (L.) Roth
Northern grape fern	*Botrychium boreale* Milde
Moonwort	*Botrychiumlunaria* (L.) Schwartz
Grape fern	*Botrychium virginiana* (L.) Sw.
	Custopteris fragilis (L.) Bernh.
Sheild fern	*Dropteris austriaca* (Jacq.) Woyn.
Oak Fern	*Gymnocarpium dryopteris* (L.) Newm.
Northern Holly fern	*Polystichum lonchittis* (L.) Roth
Oregon wood sia	*Woodsia oregana* (DC.) Eat.
Sedges, Rushes, Wood Rushes and Cotton Grasses	
	Carex albonigra Mack.
Water sedge	*Carex aquatilis* Wahl.
	Carex atrata L. var. *atrosquama* (Mack.) Cronq.
	Carex brevipes W. Boott
	Carex brunnescens (Pers.) Poir. in Lam.
	Carex capillaris L.
	Carex capitata Soland ex L.
	Carex dioica Wormskj. var. *gynocrates* Ostenf.
	Carex disperma Dewey
	Carex eleocharis Bailey
	Carex foena Willd.
	Carex interior Bailey
	Carex kellogii W.Boott
	Carex leptalea Wahl.
	Carex limosa L.
	Carex macloviana D'Urv.
	Carex media R.Br.
	Carex mertensii Prescott
	Carex microglochin Wahl.
	Carex misandra R.Br.
	Carex nardina Fries
	Carex migricans C.A. Mey
	Carex norvegica Retz.
	Carex obtusata Lilj.
	Carex pachystachya Cham. ex Steud.
	Carex praticola Rydb.
	Carex pyrenaica Wahl.
	Carex raymondii Calder
	Carex rossii Boott
	Carex rostrata Stokes
	Carex saxitilis L.
	Carex siccata Dewey
	Carex simulata Mack.
	Carex spectabilis Dewey
	Carex vesicaria L.
	Carex xerantica Bailey
	Carex spp.
	Eriophorum brachyantherum Trautv.
	Eriophorum polystachion L.
	Eriophorum vaginatum L.
	Juncus biglumis L.
	Juncus castaneus Sm.
	Juncus drummondii E.Mey
	Juncus tenuis Willd.
	Juncus triglumis L.
	Kobresia myosuroides (Vill.) Fiori
	Luzula arcuata (Wahl.) Sw.
	Luzula glabrata (Hoppe) Desv.
	Luzula parviflora (Ehrh.) Desv.
	Luzula spicata (L.) DC.
	Luzula wahlengergii Rupr.
	Scirpus caespitosus L.
Forbs	
Yarrow	*Achillea millefolium* L.
Monkshood	*Aconitum delphinifolium* DC.
Baneberry	*Actaea rubra* (Ait.) W[illegible]
False dandelion	*Agoseris auriantiac*[illegible]) Greene
False dandelion	*Agoseris glauca* (Pursh) Raf.
Nodding onion	*Allium cernuum* Roth
Wild chives	*Allium schoenoprasum* L.
Pearly everlasting	*Anaphalis margaritacea* (L.) Benth. and Hook
Fairy candelabra	*Androsace septentrionalis* L.
Alpine windflower	*Anemone drummondii* S. Wats.
Windflower	*Anemone multifida* Poir.
Chalice flower	*Anemone occidentalis* Wats.
	Anemone parviflora Michx.
White angelica	*Angelica genuflexa* Nutt.
	Angelica sp.
	Antennaris alpina (L.) Gaertn. var.

	canescens Lange
	Antennaria alpina (L.) Gaertn. var. *media* (Greene) Jeps.
	Antennaria corymbosa E.Nels.
	Antennaria lanata (Hook.) Greene
	Antennaria microphylla Rydb.
	Antennaria monocephala DC. spp. *angustata* (Greene) Hult.
	Antennaria neglecta Greene var. *attenuata* (Fern.) Cronq.
	Antennaria nitida Greene
Showy everlasting	*Antennaria pulcherrima* (Hook.) Green
	Antennaria racemosa Hook.
	Apocynum androsaemifolium L.
Blue columbine	*Aquilegia brevistyla* Hook.
	Arabis divaricarpa A.Nels.
Rock cress	*Arabis drummondii* A.Gray
	Arabis lemmonii Wats. var. *derpanoloba* (Greene) Roll.
	Arabis sp.
	Arenaria obtusiloba (Rydb.) Fern
	Arenaria dawsonensis Britt.
	Arenaria lateriflora L.
	Arenaria nuttallii Pax
Sandwort	*Arenaria rubella* (Wahl.) J.E.Sm.
	Arnica alpina (L.) Olin var. *tomentosa* Macoun
	Arnica amplexicaulis Nutt.
Heart-leaved arnica	*Arnica cordifolia* Hook.
	Arnica latifolia Bong. var. *gracilis* (Rydb.) Cronq.
	Arnica rydbergii Greene
	Artemisia borealis Pall.
Pasture Sage	*Artemisia frigida* Willd.
	Artemisia norvegica Fries
	Aster alpinus L.
Lindley's aster	*Aster ciliolatus* Lindl.
Showy aster	*Aster conspicuus* Lindl.
	Aster foliaceus Lindl.
	Aster modestus Lindl.
	Aster sibiricus L.
	Aster sibirixcus? (white ligule)
	Astraglaus aboriginum Richards.
	Astragalus alpinus L.
	Astragalus bourgovii Gray
	Astragalus eucosmus Robins. ssp. *eucosmus*
Timber milk vetch	*Astragalus frigidus* (L.) Gray var. *americanus* (Hook.) Wats.
	Astragalus striatus Nutt.

	Astragalus tenelus Pursh
	Astragalus vexilliflexus Sheld.
Indian mustard	*Brassica Juncea* (L.) Coss.
Winter cress	*Barbarea orthoceras*? ledeb.
Mountain marigold	*Caltha leptosepala* DC.
Venus' slipper	*Calypso bulbosa* (L.) Oakes
Bluebell	*Campanula rotundifolia* L/
Alpine bluebell	*Campanula lasiocarpa* Chanm.
	Cardamine bellidifolia L.
	Cardamine pensylvanica Muhl.
	Cardamine umbellata Greene
Red paintbrush	*Castilleja miniata* Dougl.
	Castilleja accidentalis Torr.
Mouse-eared chickweed	*Cerastium arvense* L.
	Cerastium berringianum Cham. & Schlect.
Strawberry blight	*Chenopodium umbellatum* (L.) Asch.
	Chrysanthemum leucanthemum L.
Golden saxifrage	*Chrysoplenium tentrandum* (Lung) Fries
Western spring beauty	*Claytonia lanceolata* Prush
	Clintonia uniflora (Schult.) Kunth.
Bunchberry	*Cornus canadensis* L.
Pink corydalis	*Corydalis sempervirens* (L.) Pers.
Alpine hawkweed	*Crepis nana* Richards.
	Delphinium glacum S. Wats.
	Draba aurea Vahl.
	Draba borealis DC.
	Drabe cana Rydb.
	Drabe cinerea Adams
	Draba fladnizensis Wulf.
	Draba incerta Pays.
	Draba lactea Adams
	Draba lanceolata Royle
	Draba lonchocarpa Rydb.
	Draba longipes Raup
	Draba oligosperma Hook.
	Draba porsildii B.A. Mulligan
	Draba stenoloba Ledeb.
	Draba ventosa Gray
	Epilobium alpinum L. Var. *clavatum* (Trel.) C.L. Hitchc.
	Epilobium alpinum L. var. *lactiflorum* (Hausskn.) C.L. Hitchc.
	Epilobium alpinum L. var. *nutans* (Hornem.) Hook
Fireweed	*Epilobium angustifolium* L.
	Epilobium glandulosum Lehm. var.

	tenue (Trel.) C.L.Hitchc.
	Epilobium latifolium L.
Yellow fireweed	*Epilobium leuteum* Pursh
	Epilobium palustre L.
Horsetail	*Equisetum arvense* L.
Scouring rush	*Equisetum hymale* L.
	Equisetum scirpoides Michx.
	Equisetum variegatum Schleich.
Compound-leaved fleabane	*Erigeron compositus* Pursh var. *discoideus* A.Gray
	Erigeron compositus Pursh var. *glabratus* Macoun
	Erigeron glabellus Nutt.
Large-flowered fleabane	*Erigeron grandiflorus* Hook.
	Erigeron peregrinum (Pursh) Greene ssp. *callianthemus* (Greene) Cronq. var. *callianthemus*
	Erigeron peregrinus (Pursh) Greene spp. callianthemus var scaposus (T & G.) Cronq.
	Erigeron pumilus Nutt.
Eyebright	*Euphrasia disjunta* Ferne. & Wieg.
Wild strawberry	*Fragaria virginiana duchesne* var.
Hemp nettle	*Galeopsis tetrahit* L.
Northern bedstraw	*Galium boreale* L.
	Galium trifidum L.
	Gallium triflorum Michx.
Felwort	*Gentiana amarella* L.
Moss gentian	*Gentiana freemontii* Torr.
	Gentiana glauca Pall.
	Gentiana propinqua Richards
	Gentiana prostrata Haenke
White geranium	*Geranium richardsonii* Fisch. & Trautv.
Yellow avens	*Geum allepicum* Jacq.
Yellow avens	*Geum macrophyllum* Willd.
Purple avens	*Geum rivale* L.
Rattlesnake plaintain	*Goodyera oblongifolia* Raf.
	Goodyera repens (L.) R.Br.
Northern green orchid	*Habenaria hyperborea* (L.) R.Br.
Tall white orchid	*Habenaria dilatata* (Pursh) Hook.
Blunt-leaved orchid	*Habenaria obtusata* (Pursh) Richards.
Slender bog-orchid	*Habenaria saccata* Greene
Bracted orchid	*Habenaria viridis* (L.) R.Br. var. *bracteosa* (Muhl.) Gray
	Hedysarum alpinum L. var. *grandiflorum* Roll.

	Hedysarum boreale Nutt. var. *boreale*
	Hedysarum boreale Nutt. var. *mackenzii* (Richards.) C.L.Hitchc.
	Hedysarum sulphurescense Rydb.
Cow parsnip	*Heracleum lanatum* Michx.
White-flowered hawkweed	*Hieracium albiflorum* Hook.
	Hieracium gracile Hook.
Narrow-leaved hawkweed	*Hieracium umbellatum* L.
	Hieracium sp.
Mare's tail	*Hippuris vulgaris* L.
	Koenigia islandica L.
White peavine	*Lathyrus ochroleucus* Hook.
Leather leaf	*Leptarrhena pyrolifolia* (D.Don) R.Br.
Heart-leaved twayblade	*Listera cordata* (L.) R.Br.
Stoneseed	*Lithospermum rukererale* Lehm.
	Luetkea pectinata (Pursh) Kuntze
Lupine	*Lupinus nootkatensis* Donn
	Lychnis drummondii (Hook.) Wats.
Buckbean	*Menyanthes trifoliata* L.
Lungwort	*Mertensia paniculata* (Ait.) G. don
Red monkey flower	*Mimulus lewisii* Pursh
Bishop's cap	*Mitella nuda* L.
Alpine forget-me-not	*Kmosotis sylvatica* Hoffm. var. *alpestris* (Schmidt) Koch
Water milfoil	*Myriophylllum spicatum* L.
Clustered broom-rape	*Orobanche fasciculata* Nutt.
Sweet cicely	*Osmorhiza chilensis* Hook. & Arn.
	Osmorhiza purpurea (coult. & Rose) Suksd.
Mountain sorrel	*Oxyria digyna* (L.) Hill
Reflexed locoweed	*Oxytropis deflexa* (Pall.) DC.
	Oxytropis podocarpa A. Gray
Early yellow locoweed	*Oxytropis sericea* Nutt. var. *spicata* (Hook.) Barneby
Showy locoweed	*Oxytropis splendens* Dougl.
Alpine poppy	*Papaver kluanensis* D. Love
Grass of Parnassus	*Parnassia fimbriata* Konig
	Parnassia palustris L. var. *montanensis* (Fern. & Rydb.) C.L. Kitchc.
	Parnassia palustris L. var. *neogaea* Fern.
	Pedicularis bracteosa Benth.
	Pedicularis capitata Adams
	Pedicularis groenlandica Retz.

Lousewort	*Pedicularis labradorica* Wirsing
	Pedicularis lanata Cham & Schlecht.
	Pedicularis langsdorfii Fisch.
Slender blue beardtongue	*Penstemon procerus* Dougl.
	Petasites hyperboreaus Rydb.
Palmate-leaved coltsfoot	*Petasites palmatus* (Ait.) A. Gray
Arrow-leaved Coltsfoot	*Petasites sagittatus* (Banks) A. Gray
Scorpion weed	*Phacelia sericea* (Graham) A. Gray
.	*Polemonium acutiflorum* Willd
Jacob's ladder	*Polemonium caeruleum* L.
	Polemonium pulcherriumu Hook.
	Polygonum douglasii Greene
Bistort	*Polygonum viviparum* L.
White cinquefoil	*Potentilla arguta* Pursh
	Potentilla diversifolia Lehm.
	Potentilla elegans Cham & Schlecht
Graceful cinquefoil	*Potentilla gracilis* Dougl.
	Potentilla hippiana Lehm.
	Potentilla hookeriana Lehm.
	Potentilla norvegica L.
Marsh cinquefoil	*Potentilla palustris* (L.) Scop.
	Potentilla pensylvanica L.
	Potentilla uniflora Malte
	Potentilla villosa Pall.
	Potentilla sp.
	Ranunculus eschscholtzii Schlecht
	Panunculus occidentalis Nutt.
Dwarf buttercup	*Panunculus pygmaeus* Wahl.
Yellow rattle	*Rhinanthus crista-galli* L.
Dwarf raspberry	*Rubus acaulils* Michx.
Cloudberry	*Rubus chamaemorus* L.
	Rubus pedatus J.E. Smith
Dewberry	*Rubus pubescens* Raf.
Green sorrel	*Rumex acetosa* L. ssp. *alpestris* (Scop.) Love
Western dock	*Rumex occidentalis* S. Wats.
Pearlwort	*Sagina saginoides* (L.) Karst.
	Saxifraga adscendens L. var. *oregonensis* (Raf.) Breit
	Saxifraga aizoides L.
Prickly saxifrage	*Saxifraga bronchialis* L.
	Saxifraga caespitosa L.
	Saxifraga cernua L.
	Saxifraga debilis Engelm. ex Gray
	Saxifraga flagellaris Willd.
Nodding saxifrage	*Saxifraga lyallii* Engler. var. *hultenii* (Calder & Savile)
	Saxifraga nivalis L. var. *tenuis* Wahl.
	Saxifraga occidentalis Wats. var. *occidentalis*
Purple saxifrage	*Saxifraga oppositifolia* L.
	Saxifraga punctata L. var. *cascadensis* (Cald. & Savile) C.L Hichc.
	Saxifraga tricuspidata Rottb.
Yellow stonecrop	*Secum lanceolatum* torr.
Little club moss	*Selaginella densa* Rydb.
	Selaginella selaginoides (L. Link
	Senecio indecorun Greene
	Senecio pauciflorus Pursh
	Senecio pauperculus Michx.
	Senecio triangularis Hook.
	Sibbaldia procumbens L.
Moss campion	*Silene acaulis* L. var. *exscapa* (All.) DC.
Moss campion	*Silene aacaulis* L. var. *subacaulescens* (Will.) Fern. & St. John
Blue-eyed grass	*Sisyrinchium angustifolium* Mill.
Star-flowered Solomon's seal	*Smilacina stellata* (L.) Desf.
Goldenroad	*Solidago canadensis* L. var. *salebrosa* (Piper) Jones
	Solidago multiradiata Ait.
	Solidago sp.
Ladies tresses	*Spiranthes romanzoffiana* Cham. & Schlect.
	Stellaria calycantha (Ledebl) Bong.
	Stellaria crispa Cham & Schlect.
Long-leaved chickweed	*Stellaria longifolia* Muhl.
	Stellaria longipes Boldie
	Stellaria monantha Hulten
Chickweed, starword	*Stellaria* sp.
Twisted stalk	*Streptopus amplexifolius* (L.) DC.
	Taraxacum ceratophorum (Ledeb.) DC.
	Taraxacum eriophorum Rydb.
Dwarf alpine dandelion	*Taraxacum lyratum* (Ledeb.) DC.
Dandelion	*Taraxacum officinale* Wever
Meadow rue	*Thalictrum occidentale* A. Gray
Veiny meadow rue	*Thalictrum venulosum* Trel.
Mitrewort	*Tiarella trifoliata* L.
Globeflower	*Trollius laxus* Salisb.

Nettle	*Urtica dioica* L.
Valerian	*Valeriana dioica* L.
	Valeriana sitchensis Bong.
False helebore	*Veratrum viride* Ait.
America brooklime	*Veronica americana* Schwein.
Alpine speedwell	*Veronica wormskjoldii* R. & S.
	Veronica serphllifolia L.
Vetch	*Vicia americana* Muhl.
Early blue violet	*Viola adunca* J.E. Smith
Canada wood violet	*Viola canadensis* L. var. *rugulosa* (Greene) C.L. Hitchc.
	Viola epipsela? Ledeb.
	Viola glabella Nutt.
	Viola sp.
White camus	*Zygadenus elegans* Pursh
Grasses	
Wheatgrass	*Agropyron caninum* (L.) Beauv. ssp. *majus* (Vasey) C.L. Hitchc. var. *andinum* (Scribn. & Smith) C.L. Hitchc.
	Agropyron caninum (L.) Beauv. ssp. *majus* (Vasey) C.L. Hitchc. var. *latiglume* (Scribn. & Smith) C.L. Hitchc.
Northern wheatgrass	*Agroppyron dasystachum* (Hook.) Scribn.
Redtop	*Agrostis alba* L.
	Agrostis borealis Hartm.
Spike redtop	*Agrostis exarata* Trim.
Hair redtop	*Agrostis scatra* Willd.
Alpine redtop	*Agrostis variabilis* Rydb.
Fringed brome	*Bromus ciliatus* L.
Northern awnless brome	*Bromus inermis* Leys. ssp. *pumpellianus* (Scribn.) Wagnon var. *pumpellianus*
	Bromus sp.
Marsh reed grass	*Calamagrostis canadensis* (Michx.) Bearv.
Northern reed grass	*Calamagrostis inexpansa* A. Gray
	Calamagrostis neglecta (Ehrh.) Gaertn.
Pruple reed grass	*Calamatrostis purpurescens* R. Br.
Drooping wood reed	*Cinna latifolia* (Trevl) Griseb.
Timber oat grass	*Danthonia intermedia* Vasey
Mountain hair grass	*Deschampsia atropurpruea* (Wahl.) Scheele
Tufted hair grass	*Deschampsia caespitosa* (L.) Bearv.
Canada wild rye	*Elymus canadensis* L.
Smooth wild rye	*Elymus glaucus* Buckl.
Hairy wild rye	*Elymus innovatus* Beale
Virginia wild rye	*Elymus virginicus* L.
Altai fescue	*Festuca altaica* Trim.
	Festuca baffinensis Polunin
Sheep fescue	*Festuca ovina* L. var. *brevifolia* (R.Br.) Wats.
	Festuca ovina L. var. *rydbergii* St. Yves
	Festuca "vivipara"
Fowl manna grass	*Glyceria striata* (Lam.) C.L. Hitchc.
	Hierochloe alpina (Swartz) R.&S.
Sweet grass	*Hierochloe odorata* (L. Beauv.
Hooker's oat grass	*Helictotrichon hookeri* (Scribn.) Henr.
June grass	*Koeleria cristata* Pers.
Alpine timothy	*Phleum alpinum* L.
	Poa alpigena? (Fries) Lindm.
Alpine bluegrass	*Poa alpina* L.
Annual bluegrass	*Poa annua* L.
	Poa arctica R.Br.
	Poa canbi (Scribn.) Piper
	Poa cusickii Vasey var. *epilis* (Scribn.) C.L. Hitchc.
	Poa glauca Vahl
	Poa glaucifolia Scribn. & Will
	Poa incurva Scribn. & Will
	Poa interior Rydb.
	Poa lanata Scribn. & Merr.
Bog bluegrass	*Poa leptocoma* Trim.
	Poa nervosa (Hook.) vasey
Fowl bluegrass	*Poa pa lustris* L.
Kentucky bluegrasss	*Poa pratensis* L.
	Poa rupicola Nash
	Poa scabrella (Thurbl) Benth. ex vasey
	Poa sp.
Western needle grass	*Stipa occidentalis* Thurb. var. *minor* (Vasey) C.L.Hitchc.
Porcupine grass	*Stipa spartea* Trim. var. *curtiseta* C.L.Hitchc.
	Trisetum spicatum (L.) Richt.
	Trisetum wolfii Vasey

Rare Plants in the Park

Several species of flora thought to be rare in Alberta have been reported to occur in the park (R. Brown et.al. 1975). They are:

Rocky Mountain juniper (Juniperus scopularum)
Slender hair grass (Deschannpsia elongata)
Green fescue (Festuca viridula)
Wood rush (Luzula wahlenbergii)
Twisted stalk, red-flowered (Streptopus roseus)
Red sorrel (Rumex paucifolius)
Sticky currant (Ribes viscosissimum)
Perennial lupine (Lupinus argenteus)
Yellow violet (Viola Glabella)
Marsh violet (Viola palustris var brevipes)
Red elder (Sambucus pubens)

Below is a list of rare plant species which have been identified in the park, and which are now entered in the Alberta Natural Heritage Inventory (ANHIC 1996).

Common Name	Latin Name	Rarity	General Location
Western Buttercup	Ranunculus occidentalis v. Brevistylis	S2	Emerald Lakes
Bent sedge	Carex deflexa	S2	Around mouth of Francis Peak Creek
Prest sedge	Carex prestii	S2	@ Lower Kakwa Falls
Raup's willow	Salix raupii	S1	@ Lower Kakwa Falls
Awnless Tristetum (grass)	Trisetum wolfii	S1 G4	Dead Horse Meadows
Alpine redtop (grass)	Agrostis variabilis	S3?	along northeast boundary near headwaters of Lynx Creek

Ranking for rarity is based on number of occurrences in Alberta.
S1 - 5 or less occurrences in the province
S2 - 6-20 occurrences in the province
S3 - 21-100 occurrences in the province
G4 is a global ranking (look for what G4 represents)

Appendix D

Management Issues and Concerns

During the public participation process the public raised a number of issues and concerns. The following chart lists these issues and concerns, and identifies where they are addressed in the plan. The issues may be mentioned elsewhere as well, but the pages indicated provide the most detail.

Issues and Concerns	Where addressed in the management plan
Preservation of the wildland character of the park	Page 7, Section 3.1 - Wildland Zone Page 10, Section 4.1 - Preservation
Industrial use of park	Page 5, Section 2.1 - Legislation/Policies
Access	Page 12 – Access/Registration
Motorized vehicle use	Page 13 – Off-highway vehicles
Hunting and fishing	Page 14 – Hunting and fishing
Trailriding, outfitting	Page 12 – Equestrian use
Cooperation with B.C. Parks	Page 15, Section 4.5 – Regional Cooperation
Maintenance of critical habitat for wildlife	Page 10, Section 4.1 – Preservation – wildlife
Stewardship of park	Page 10, Section 4.1 – Preservation Page 16, Section 5.5 – Monitoring
Insect and disease control in forests	Page 10, Section 4.1 – Preservation – Vegetation
Wildfire control	Page 10, Section 4.1 – Preservation – Vegetation
Visitor Information	Page 11, Section 4.2 – Heritage Appreciation – Visitor Information
Two Lakes/Sherman Meadows Corridor	Page 14 – Day use
User conflicts i.e. horses and ATVs	Page 12 - Access/Registration
Camping	Page 14 – Camping
Facilities	Page 7, Section 3 - Zoning

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